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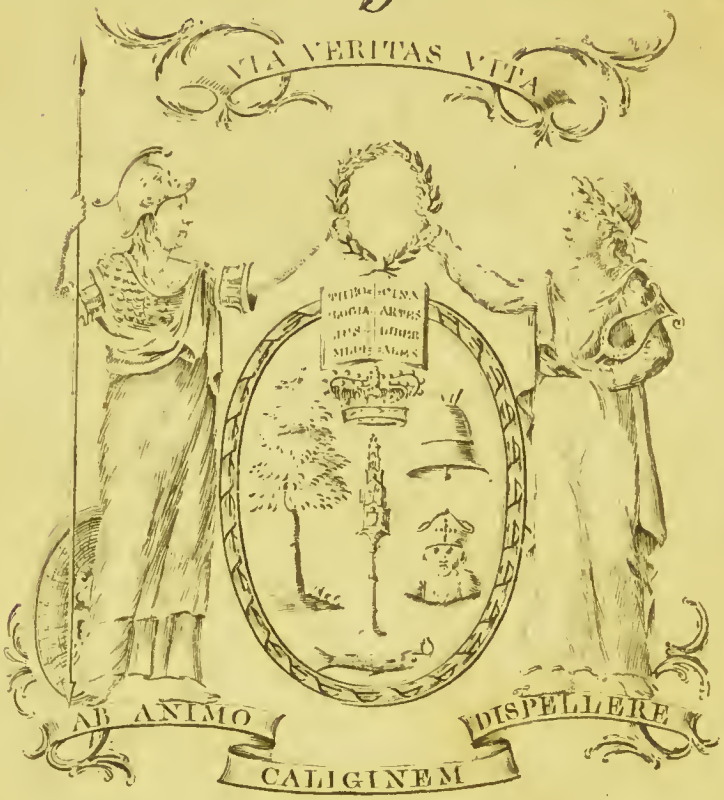

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ΦΥΣΙΟΛΟΓΙΑ:

OR, THE

DOCTRINE OF NATURE,

COMPREHENDED IN THE

ORIGIN AND PROGRESSION

OF

HUMAN LIFE;

THE

VITAL AND ANIMAL FUNCTIONS;

DISEASES OF BODY AND MIND;

AND

Remedies Prophylactic and Therapeutic.

By THOMAS FREWEN, M. D.
Of Lewes, in Sussex.

Nunquam aliud Natura, aliud Sapientia dicit.
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MDCCLXXX.

ERRATA.

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EPIS-

EPISTOLA AUTHORIS

AD

AMICOS SUOS

In Re medicâ honorandos.

PHILOSOPHERS have announced the Animal Body to be a mere machine, in which Nature hath a univerſal ſuperintendency, demonſtrating all actions and motions to be the natural conſequences of particular cauſes; ſome of which have been diſcovered by the obſervations of learned men, and are now become ſubjects of geometrical demonſtration: that others ſtill remain undiſcovered, is not, that of their own natures they are leſs capable of demonſtration, but that the data are inſufficient to explain the phænomena.

Indeed, it is evident, that the Doctrine of Nature is not attainable by Syſtems of Natural Philoſophy; which are read more to obtain the hypotheſes, than with hopes to gain a comprehenſive, ſcientifical, and ſatisfactory know-

ledge:

ledge: ſo that the mind caſts and turns itſelf from one thing to another, to bring all the ends of a long and various hypotheſis together; and ſee how one part coheres with another, in order to clear off appearing contrarieties, and make the whole comprehenſive and ſatisfactory to the mind.

Dr. Boerhaave *found a nearer way to the diſcovery of the arcana of Nature, by experiments, which proved his art to be the key of Nature; by means of which, as a branch of phyſics, he became beſt acquainted with all manner of natural bodies, but more particularly with fire, the moſt univerſal of them all: and upon this principle, his doctrines, both experimental and argumentative, are drawn into concluſion, by reaſoning upon them with geometrical exactneſs. By his experiments we are taught to diſcover the actions of one body upon another, and the effects produced by thoſe actions; that is, in other words, the powers and laws of Nature.*

We are given to underſtand, that from the motion of the fluids proceeds life; and from the free circulation of them, health: ſo ſoon as the fluids

fluids ceaſe to move, the body dies; reſtore the circulation, and life returns. A perſon falling into a perfect ſwoon, for a time ſeems abſolutely dead; yet all the ſolids of the body are in a natural ſtate, and the fluids alſo, circulation excepted: agitate but the nervous ſyſtem, ſo as to convey what ſhall renew its ſyſtole to the heart, and immediately the warmth, colour, motion, and cogitation, are reſtored, and every function of life is renewed. An animal drowned, alſo, may likewiſe be reſtored to life, while the lungs remain entire and uncorrupted, by a ſtrong inflation of air into them, and expreſſion of it out again; repeating the operation for a while.

Many well-atteſted inſtances of the ſurpriſing recoveries of drowned perſons, are known to be upon record; and precepts grounded on principles that fall under our ſenſes, or are proved by experiments, deſerve the greateſt praiſe: for the art of medicine, from ſuch reaſoning, receives more benefits than men were formerly acquainted with.

Plain ſimplicity is the ſureſt teſt of truth; and whoever conſiders the great uniformity that is to

be obſerved in the ſeveral parts of a human body, and the ſtrict analogy that is kept up between the greater and leſſer parts, will find that the immediate cauſes of diſeaſes are more ſimple than they are generally ſuppoſed to be; and that the great difference ariſes more from the ſituation of the part affected, than from the morbid cauſe itſelf. How eaſy is it to account for an inflammation, or boil, on any of the extreme parts of the body, and how few ſymptoms are thence produced? But how greatly is the ſcene altered, if the ſame immediate cauſe produces an inflammation on the pleura, or lungs? and that its termination into an abſceſs, which gives relief in the former caſe, is, in the latter, attended with a various train of ſymptoms, and oftentimes the death of the patient? The ſame cauſe which produces a bleeding at the noſe, may likewiſe be productive of a fatal apoplexy; and the only difference is, that in one the blood from the ruptured veſſel has a free diſcharge, whereas in the other it lodges, and preſſes the nervous tubes, whoſe free and open action is neceſſary to continue life.

In purſuing the Doctrine of Nature, comprehended

prehended in the cauſe and cure of diſtempers, we ought to aſſume nothing contrary to our ſenſes; that our theories may be founded upon principles the moſt ſimple and prevailing, and not be ſubject to the precarious fate of hypotheſes.

When a juſt method is laid down, every thing flows eaſily and diſtinctly from it; and a few plain medicines are generally found to be ſufficient for the purpoſe they are intended.

This aſſertion is not only agreeable to the ſtricteſt reaſon, but is confirmed by experience; ſince the moſt happy practitioners have been always remarkable for the ſimplicity of their medicines.

An affected obſcurity has been often miſtaken for deep learning in phyſic; and that hypotheſis has gained the greateſt applauſe which was moſt curiouſly wrought: but, as its beauty conſiſted in the elaborate imitation of the nice texture of a cobweb, ſo its duration was equally uncertain and precarious.

" Nihil ſapientiæ odioſius acumine nimio;
" nihil verè phiſophanti moleſtius, quam
" ſophiſta.

" ſophiſta. Ideo invidam *Palladi* finx-
" erunt veteres araneam, cujus ſubtile
" opus ac tenues telæ ſunt, ſed & fra-
" giles nullique uſui."

PETRACHA *de Remediis utriuſque Fortunæ, Lib. i. Dialog.* 7.

AMICI!

" Eſtote, ergo, et aſtuti, ut ſerpentes; et
" ſinceri, ut columbæ."

Ex SEBASTIANI CASTELLIONIS *Interpretatione.*

Paginis his ſequentibus, Viri honorandi, ſi quid errati accidet, condonetis velim; quoniam, ut optimè docet vates VENUSINUS, *Art. Poet. v.* 351,

" Non ego paucis
" Offendar maculis, quas aut incuria fudit,
" Aut humana parum cavit natura. —
" Et opere in longo fas eſt obrepere ſomnum."

Quo ſi me dignabimini et favore, nihil amplius orem, qui ſum, Viri dilectiſſimi,

SERVULUS VESTER HUMILLIMUS.

ΠΡΟΛΕΓΟΜΕΝΑ.

HIPPOCRATES grounded the ſcience of Medicine upon invariable philoſophical principles, and eſtabliſhed it as the nobleſt of all arts; and his experience gained him reputation throughout the world. By his inceſſant attention, ſingular penetration, and indefatigable application, he made a larger collection of ſigns and ſymptoms of diſeaſes, than, perhaps, all other writers. His narrations were ſimple, perſpicuous, methodical, accurate, modeſt, frank, and faithful: nice was his diſtinction between the appearances ariſing from the diſeaſe itſelf, and from the errors committed by the phyſician, attendants, or in the regimen. His obſervations were as minute as important; whence he became ſo excellent, both in diſtinguiſhing caſes, and foretelling their events. Nor was his ſagacity in diſcovering remedies, greater than his benevolence in communicating them. He was neither precipitate in the application, nor in determining the effects of them; neither concealed his bad, nor boaſted of his good ſucceſs. The medicines he uſed were few, but efficacious; being more ſoli-

citous about the juſt and ſeaſonable application of thoſe that were neceſſary, than about variety: and his preference of experienced, to other medicaments, was as conſtant as his regard to evident, rather than occult cauſes; by conſidering the courſe and duration of diſeaſes, obſerving the days when they raged or remitted; controuling or forwarding the determination of morbid matter, digeſting its crudities, accompanying what was maturated through the paſſages indicated by the diſtemper, directing the ſeparation, and promoting the expulſion. Laſtly, being rather an imitator and aſſiſtant, than, by raſh attempts, a diſturber of Nature, he truly ſaved all who recovered, without being the executioner of thoſe that miſcarried under his care. By attending ſtrictly to what proved prejudicial or ſerviceable, he became acquainted with remedies; and, by contemplating the time and manner in which Nature alone puts the enemy to flight, he eſtabliſhed rules for the uſe of thoſe remedies, which, after almoſt infinite experience, he ventured to recommend, but not without thoſe cautions which might deter perſons unſkilled in the art from the practice of it. Who, before Hippocrates, maintained the ſeaſons to be the cauſe of thoſe diſeaſes that uſually reign in them? that the particular variations of weather produced particular diſeaſes?

diſeaſes? and that endemic diſorders, or thoſe peculiar to each place, were to be accounted for from the ſituation of it, and the manner of living to which its inhabitants were accuſtomed? After making the beſt uſe of the records that deſcended to him, being the nineteenth phyſician, by uninterrupted ſucceſſion, in his family, and having improved himſelf by travelling into various countries, he taught a great number of ſcholars, many of whom afterwards, ſituated in different parts of the world, informed him of whatever occurred worthy of his notice: with theſe qualifications and aſſiſtances he compiled his almoſt conſummate collection of obſervations. By means of this experimental doctrine, phyſicians, in moſt caſes, were ſeldom at a loſs for proper remedies.

Dr. Sydenham ſtrictly adhered to the doctrines of Hippocrates; and, in treating acute diſtempers, aſſuaged the impetus, raiſed the languid, ſupported the ſtrength by regimen; and, when the fever was violent, made diſcharges, blunted acrimony, diluted too thick fluids, and condenſed too thin; conſtringed lax veſſels, and relaxed thoſe too rigid; made revulſion to parts where the danger was leſs, and adminiſtered occaſionally paregorics; in languors uſed ſtimulating attenuants. Water, wine, vinegar, barley, nitre, honey, rhubarb, opium,

opium, fire, and the lancet, anſwered theſe purpoſes.

In chronical caſes, mineral waters, ſalts, artificial ſudorifics, ſoap, mercury, ſteel, a few vegetables, and proper exerciſes, ſupplied all the intentions.

This was the ſtate of phyſic, as far as obſervation and experience could lead the way, till Boerhaave diſcovered the myſterious receſſes of Nature, by his experiments; and demonſtrated by what laws the motions of a human body are performed, and the natural ſtate and alterations to which it is liable from what it receives, whether as food, phyſic, or poiſon, whereby it is determined either to health or ſickneſs.

He ſhews us, that all the ſolids of which a human body is compoſed, are either mere earth, or ſome earthy ſubſtance held together by a certain attractive force; or a particular oil; for every ſolid part, when urged by fire, leaves nothing but earth and oil behind it: and hence we learn why the veſſels of our bodies are not as ſpirit, oil, or ſalt, would be, ſet looſe, and rendered volatile, either by the heat which they naturally ſuſtain, or the other powers that continually act upon them; namely, becauſe they are compoſed of an

an earth that is not to be changed by any ſubſtance or operation in Nature. Again, we are informed of what kind of liquor the blood is, of what parts it conſiſts, and by what principles it acts: for it does not act ſolely as a fluid, flowing along its canals, according to the laws of hydraulics; but at the ſame time, being poſſeſſed of other active principles, as ſalts, ſpirits, oils, &c. wherein it differs from all other liquids, it exerts a force of its own. And by knowing the particular nature and qualities of theſe principles, a phyſician will nicely underſtand, and advantageouſly diſtinguiſh, between the ſigns of health and ſickneſs, by the different degrees of motion and heat. He may likewiſe be informed of the ſtate of the ſolids and fluids, from the beginning of a diſtemper to the end of it, and how they are alterable by heat, ſufficient to render the ſalts of the body diſſolved, and the oils thereof volatile.

The chemical Philoſopher ſpeaks to the point in putrid diſeaſes, by examining the putrefied humours themſelves in the body, and comparing them with the ſame humours included in proper veſſels, and expoſed to the ſame degree of heat; whereby the ſame effects are exhibited as are found in the body: and we are taught what muſt enſue upon the ſtagnation of blood in the body, and what

what will be the certain effects of particular motions of that fluid, according to the particular part wherein it happens. We can certainly foretel that a ſtrong circulation will heat the body too much, render it dry, throw off its finer parts, amaſs the groſſer together, and render the ſalts and oils volatile; and, alſo, that the bones themſelves become carious, from a putrefaction or corruption of their marrow, whereby it is rendered ſo ſharp as to corrode their ſubſtance.

Theſe are diſcoveries that were certainly unknown to the antients: for, though they underſtood putrid diſtempers, both as to their viſible appearances and their effects; yet, with regard to their cauſes, they were utter ſtrangers, and never diſtinguiſhed between them, nor gave any rational account thereof.

All the changes obſervable in bodies, muſt be the effect of ſome one cauſe or other; but then that cauſe, oftentimes lying deeper than the effect, is diſcoverable only by means thereof.

Boerhaave repreſents the knowledge of Chemiſtry to be of infinite advantage to a Phyſician, in the diſcovery of the cauſe and nature of the diſtemper, and whether it tends to good or ill. For inſtance, if he ſhould find his

his patient hot and inflamed, his urine red, and his pulſe quick and hard, he will immediately know the ſtate of the fluids, and be aware that they tend to putrefaction. And, in this caſe, he obſerves, that the antients, and particularly Hippocrates and Galen, would ſay, that the perſon was preyed upon by the innate heat, in conjunction with the veſtal fire; and that, the radical moiſture of the body being conſumed, he muſt immediately die.

Hippocrates would, indeed, preſently pronounce the ſentence of death upon any-one ſick of an unknown diſtemper, wherein all the ſecretions were obſtructed; whilſt the ſkin appeared ſqualid, dry, and parched: but Boerhaave would go deeper into the nature of the diſorder, and ſhew you, that, the aqueous and ſpirituous parts of the blood being here wanting, the ſalts, which are now rendered more ſharp and corroſive, are brought, by the law of circulation, to the fine tender veſſels of the cerebrum and cerebellum, which they either wound and tear, or elſe prevent the ſecretion of the animal and vital ſpirits therein, whence death muſt neceſſarily enſue;—which is ſaying ſomething that ſatisfies the mind, and rationally accounts for the thing.

Again,

Again, Hippocrates tells us, if the urine be of a deep-red colour, ſmells ill, and appears frothy, the life of the patient is in danger: but our chemical Phyſician demonſtrates, that oil, or ſulphur, is the cauſe of colours in liquors; that this oil gives a deeper colour, the finer it is broke; and that the more 'tis ground and ſhook together, the more corroſive it grows;—which, in the preſent caſe, is the true phyſical cauſe of the effect. And he informs us, likewiſe, of the conſtitution of the patient: that he, whoſe urine is always red, ought to ſuſpect a putrefaction of his juices, or a dangerous tendency thereto; as he, who always makes a pale and limpid water, may be thence known to be of a weak conſtitution: and, when the ſweat, as well as the urine of a perſon, grows fetid, that its ſalts are too much attenuated, and the oils too much exalted. And we are given to underſtand, alſo, that, without this chemical knowledge, we could not underſtand why the chyle ſometimes turns acid in the ſtomach, or primæ viæ; nor, perhaps, how animal digeſtion is performed.

Dr. Boerhaave, beyond all doubt, founded the theory of medicine upon the ſafeſt and ſureſt principles; for, having the key of Nature

ture for his clue, he could diſcover her myſterious receſſes by his own art, and overcome preternatural conflicts with great certainty, without trying experiments on the patient.

His account of bile and of bilious diſtempers, of the hepatitis, various kinds of jaundice, of melancholy, and hypochondriacal diſorders, confeſſedly ſurpaſſes what was extant before on thoſe ſubjects.

The deſcription and cure of the whole tribe of inflammatory diſeaſes delivered by him, will probably remain unalterable as human nature.

Under the head of chronical diſeaſes, the rabies canina is handled in a moſt maſterly manner; although he was ignorant of the many applauded ſpecifics for the cure of that diſtemper. He attended ſeveral in the hydrophobia to their laſt moments; and his deſcription of their agonies was ſo very pathetic, that, it was ſaid, ſeveral of his audience could not overcome their paſſions, without ſhedding tears.

He was exceedingly circumſtantial in his examinations of the ſick, being too conſcientious

ſcientious to rely upon haſty conjectures, for the gratification of vanity, or through indifference, to ſave time and trouble of a thorough enquiry, when a good degree of probability might reſult from it.

In chronical caſes, he uſually inſpected the internal parts of the eye-lids, the caruncule lachrymales, and the gums; the blood-veſſels appearing here moſt naked: ſometimes he required the patient to try how he was affected by various poſitions of the body, to hold his breath long, and exert his voice as loud as he could:—according to which obſervations, he partly judged of the plenitude of the veſſels, of the progreſs of obſtructions of the glands, of ſcorbutic taints in the fluids, and of the affections of the cheſt, and its contents, the grand organ of ſanguification.

What method of treating the gout has been found ſo ſafe and ſerviceable, as that recommended by him? Who has ſo accurately deſcribed, and diſtinguiſhed, the different kinds of ſcurvy, requiring a cure as different and oppoſite to each other, as any the moſt contrary maladies? Who had ever before demonſtrated the heat of an animal body to proceed, altogether, from attrition, between

between the fluids and their veſſels? or obſerved that air, whilſt mixed with our circulating fluids, loſes the elaſtic property of external air, having its particles ſo ſeparated as to prevent the exertion of their mutual repellent force, which they regain when collected, upon ſtagnation of the fluids. The ſurprizing phenomena of heated air, in which an animal dies in a few minutes, of a malignant, almoſt to a peſtilential fever, were diſcovered by experiments made at his requeſt, and according to his direction.

His chirurgical doctrines on obſtruction and inflammation, are deſervedly counted originals; and thoſe concerning a ſcirrhus, cancer, and the diſeaſes of the bones, afford many important notices which eſcaped other authors. Who, before him, obſerved the membrana adipoſa et celluloſa to be the ſole ſeat of all ulcers, ſinuous and fiſtulous? In ſhort, his whole ſyſtem of ſurgery is not leſs accurate than compendious.

As a proof of his ſagacity, the following caſe was given me by a gentleman who attended his lectures, and took his degree of Doctor in phyſick at Leyden. Its authenticity made it acceptable.

A ſervant of the Doctor's, during his reſidence in Leyden, had been ill nine days of a malignant fever, attended with a delirium, tremors, faultering in his ſpeech, fluttering pulſe, and a coldneſs of the extremities. An account of the caſe, with ſome of the patient's blood and urine, was diſpatched to Profeſſor Boerhaave; from whom the following anſwer was returned, in a letter to the Doctor.

" From the obſervations noticed on the " preſent ſymptoms, and the experiments I " have made on the blood and urine, I judge " the life of this perſon to be in extreme " danger; and that, unleſs the circulation " can be encouraged in a freer manner to " the lower extremities, and nature be aſ- " ſiſted to bring on a critical change, putre- " faction will enſue.

" Let the patient be ſet up to his knees " in water made ſufficiently warm; and in " the mean time a warm bath is to be pre- " pared, to immerge his whole body. He " muſt remain in it long enough for the body " and extremities to become of an equal " warmth. He muſt be taken out with " much caution, that the cold air may not " be injurious; and put immediately into a " well-

" well-aired bed, having a ſufficiency of
" light warm covering laid over him.

" A lump of ſugar, with ſome drops of
" nitrous ſpirit dulcified, is to be held in his
" mouth, and permitted to diſſolve gradu-
" ally, while he continues in the bath, and
" to be repeated every hour or two after-
" wards: and a drink prepared of water
" acidulated with juice of lemon, and
" ſweetened with ſugar, and an eighth part
" of Rheniſh wine added, is to be given
" him, at firſt, by ſpoonfuls, made pretty
" warm; and when he can drink a larger
" quantity at once, it may be taken ad
" libitum.

" Apply old yeaſt, mixed with vinegar,
" warm, to the ſoles of his feet and ancles;
" and let it remain twelve hours, or till it
" raiſes a bliſtering of the epidermis on the
" parts.

" Proper food, to ſupport the ſtrength of
" the patient, is jelly of bread, with a ſmall
" proportion of Rheniſh wine, and it may
" be a little ſweetened with ſugar. It is to
" be given warm by ſpoonfuls, every half
" hour, or hour at fartheſt."

In conſequence of this good advice, by the performance of theſe means, a plentiful ſweating enſued, which was productive of a critical change, according to the premonition of our moſt celebrated maſter of medicine; inſomuch that, the excretions being duly attended to, with the uſe of the bark afterwards, this patient was, with the grateful acknowledgments of our worthy friend, reſtored to perfect health.

ΦΥΣΙΟΛΟΓΙΑ.

The Progreſs of the Human Nature, conſidered from its firſt Principles.

THE origin of man, in the rudiments of generation, is comprehended as a ſubſtance too ſmall to be diviſible. This principle has been compared to the ſhooting-forth of a plant from the ſeed, and is connected by a *funiculus* to its *placenta* adhering to the *uterus*; whence it receives nutrition from the mother, even as plants do from the earth.

After forty days, this embryo commences a fœtus, reſembling a human body in all its parts; improving in bulk and perfection, by the ſame means of nutrition, until the time of geſtation is accompliſhed: when, being ſeparated from the mother, the air intrudes, the act of inſpiration begins, the lungs are put in motion, and the infant exerciſes a natural life of its own.

After the act of reſpiration is performed, by means whereof the natural powers of the body are put in motion, to execute their various functions, a black tenacious matter, like opium (from thence called *meconium*), is purged off from the bowels; and the urine, likewiſe, is evacuated by the urethra, as in adults.

A vital faculty exiſts in the muſcular force of the heart, by which the blood is propelled, through the lungs, to all parts of the body: the canals are become the containing parts of a living body, and the fluids are the parts contained; and both the one, and the other, are eſſential to the ſame body, and united in one common life. Hence there ariſes a natural

natural power, from the circulation of the blood, manifeſt in all the ſecretions and excretions.

The infant now receives the aliments, by ſuction, at the mouth, till it becomes capable of exerciſing the faculties of maſtication, concoction, &c. and taking other kind of food for nutrition, which hath the beginning of its digeſtion from ſaliva, and its concluſion from a ferment in the ſtomach and *duodenum*; where it is changed into chyle, and liquified by its mixture with two other diſſolvents, viz. the pancreatic juice, and the bile; which divide and ſubtilize it; that thoſe parts which are left too groſs for ſanguification, may be protruded by the inteſtines. The chyle is taken up by the lacteals, and conveyed into the glands; whence it is carried to the heart by the thoracic duct, and the ſubclavian vein, wherein it begins to be mixed with the blood, and, by circulation, becomes aſſimilated thereto.

There is a power, alſo, exerciſed in the brain, by the ſecretion of a refined fluid from the blood into the nerves, which is

called the animal ſpirits: by means whereof, the functions of the mind, imagination, ratiocination, and memory, perform their exerciſes.

Theſe things premiſed, it will be eaſily granted that the human nature is compounded of both body and mind; and that the elements of life muſt conſiſt in a conſtant flux and reflux of blood, nervous juice, and air, to and from thoſe principal organs, by means whereof both the vital and animal functions are performed. Indeed, health of body and mind cannot be perfect without the conſtant performances of theſe offices: for the mind is ſubject to diſeaſes, as well as the body; and their intercourſe is ſuch, that they are liable to be affected, alſo, from the diſtempers of one another.

Ill concoctions and flatulencies are the common cauſes of indigeſtion; and the effects thereof are twitchings and vellications of the bowels; which might quickly be remedied by medicine: but when the cure is neglected, unleſs Nature acts the kind part of the phyſician, the conſequences will enſue;

ſue; the nervous fibres of the brain will be irritated, the animal ſpirits diſturbed, and the mind affected with dread and horror. Hence the bodily diſeaſe becomes, at laſt, fixed upon the mind, and grows much more difficult of cure; for the mind will be continually haraſſed, till the cauſe of the evil is removed.

When the mind is kept too much upon the ſtretch, by intenſe thought, or ſtudy, it is uſually apt to render the body in a coſtive ſtate; ſo that the remedy is a proper opening of the body, both by medicine and diet: or, when the mind is too much relaxed, like the body alſo, it requires a cordial ſupport, and muſt be relieved by chearful ſociety, moderate exerciſe, and reſt.

Rich foods, and high ſauces, certainly corrupt the mind, as well as the body; and breed vicious humours in both: and, indeed, it is evident to our ſenſes, that an over-doſe of ſpirituous, or fermented liquor, occaſions madneſs and diſtraction: and, alſo, that a ſurfeit of ſtrong foods will ſo ſink, depreſs, and diſable the faculties of both body and mind,

mind, as to incur an habitual melancholy. Now, either of theſe courſes continued in, will habituate theſe two diſtempers, madneſs, and melancholy, into their own habitual natures. Hence we may reaſonably judge, that, as all diſtempers are cured by their contraries, plain, moderate food, and unfermented liquors, will not only prevent, but cure theſe two kinds of diſtempers.

A ſpare diet is a ſovereign remedy againſt all diſeaſes ariſing from repletion; and it is founded on this principle, that Nature ought not to be buſied and diſtracted in the concocting of food, but left wholly to her work of digeſting and expelling morbific matter.

Moſt of the chronical diſeaſes, the infirmities of old age, and the ſhort lives of *Engliſhmen*, are owing to repletion; and may be either cured, prevented, or remedied, by abſtinence.

Pleaſure, and pain, ſeem to be the two great engines in Nature's hand; whereby we are directed to conſult our own preſervation, and to avoid our ruin. To things that may contribute

contribute to the one, as food, and venery, ſhe has annexed pleaſure; and to thoſe that may conduce to the other, as hunger, and diſeaſes, pain: ſhe durſt not leave it to our diſcretion, whether we would preſerve, and propagate the ſpecies, or not; but, as it were, conſtrains us to both. Were there no pleaſure in eating, nor pain in hunger, what numbers would be ſtarved, through negligence, forgetfulneſs, or ſlothfulneſs? What is it that induces people to the office of generation, but pleaſure? Without this, the world had ſcarce ſubſiſted to this time.

Among the multiplicity of things to be done, and to be avoided, for the preſervation of animal life; how ſhould we have diſtinguiſhed between one and the other, but for the ſenſation of pleaſure and pain? Theſe are not only ſpurs to urge us on, but alſo guides to direct us whither we are to go. Wherever Nature has fixed a pleaſure, we may take it for granted, ſhe there enjoins a duty; and ſomething is to be done, either for the individual, or for the ſpecies.

Hence

Hence it is that our pleaſures vary at different ſtages of life: the pleaſures of a child, a youth, a grown man, an old man, all tending to thoſe particular things required of Nature in that particular ſtate of life, either for the preſervation, ſimply; or, jointly, for that and propagation.

Hence, from the different conſtitutions of the body at different ages, it were eaſy to account for all the particular taſtes and pleaſures thereof: not by deducing the pleaſures, mechanically, from the diſpoſition of the organs in that ſtate; but by conſidering what is neceſſary for the perfection and well-being of the individual in that ſtate; and what it is to contribute to that of the ſpecies.— In a child, e. gr. mere preſervation, in the preſent caſe, is not enough; it muſt likewiſe grow: to bring this to paſs, Nature has made the returns of hunger more frequent as well as more acute, and the pleaſures of feeding more exquiſite. And that the exceſs of aliment, in proportion to the bulk of the body, may be diſpenſed withal, ſhe has made one of the great pleaſures of the ſtate to conſiſt in

in a ſeries of ſportive exerciſes, by means whereof the parts of the body come to be opened and expanded, and arrive to maturity. This done, the pleaſures that conduced thereto, diſappear; and others, ſuited to the new ſtate, ſucceed.

All animal bodies, by the actions inſeparable from life, undergo a continual change. In length of time, the ſmalleſt fibres become rigid; the minute veſſels grow into ſolid fibres, no longer pervious to the fluids; the greater veſſels grow hard, and narrow, and every-thing becomes contracted, cloſed, and bound up; whence the dryneſs, immobility, and extenuation obſerved in old-age. By ſuch means, the offices of the minuter veſſels are deſtroyed; and the humours ſtagnate, harden, and at length coaleſce with the ſolids. Thus are the ſubtileſt fluids in the body intercepted, and loſt; the concoction weakened; and the reparation prevented: only the coarſer juices continue to run ſlowly through the greater veſſels, to the preſervation of life, after many of the animal functions are deſtroyed. This is the courſe of Nature, and

in

in the proceſs of theſe changes, death itſelf becomes inevitable, as the neceſſary conſequence of life. But it is rare that life is thus long protracted, or that death ſucceeds merely from the decays and impairments of old-age: diſeaſes, a long and horrid train, uſually cut the work ſhort.

It has been generally underſtood, that a man may be reckoned dead, when he no longer breathes, and his heart and arteries have left off circulation and pulſation. Even *Lanciſi*, the beſt author on this ſubject, ſays, that without a ſmall degree of reſpiration, and ſome little motion and trembling of the heart, there is no life. In conſequence of this ſyſtem, the general practice is, that, as ſoon as theſe ſymptoms of life are gone, all hopes and endeavours to maintain the ſmall remains thereof, are laid aſide. But Dr. *Stephenſon* does not admit of this doctrine, being of opinion, that, after the motion of the heart, arteries, and lungs, ceaſes, there often remains a ſmall degree of vital principle, deſerving attention. After a full ſtop of all thoſe organic motions, on which life is ſaid

to

to depend, the juices may retain ſo much of the animal proceſs, as frequently ſerves to keep up warmth for a long time, which, with proper cheriſhing, might perhaps reſtore life entirely. Every age and country afford inſtances of ſurprizing recoveries after lying long for dead. From the number of theſe, preſerved by lucky accidents, we may conclude, that a far greater number might have been preſerved, by timely pains and ſkill.

His theory is, that the cauſe of animal heat, or the inteſtine motion, which has been going on proſperouſly, while the progreſſive motion of the fluids in the veſſels continued, is now checked, yet ſtill proceeds in a lower manner, perhaps like the beginning of fermentation, or putrefaction. By this degree of the animal proceſs, the maſs of fluids, particularly in the great reſervoir of the venous blood, the heart, rarifying, preſſing every way, and being reſiſted by the valves, ſwells ſo as to fill the flaccid right ventricle of the heart, which had been ſome time empty; and thus ſtimulating its fibres, which

were

were at reſt, ſets them again in motion: as we ſee the heart, after being taken out of the body, by having warm water thrown on it, beats afreſh, though it has been ſome time motionleſs. The right auricle being thus filled, and ſtimulated, contracts, and empties itſelf into the pulmonary artery, whereby the circulation begins where it left off, and life is reſtored, if the organs and juices are in a fit diſpoſition for it; as perhaps they are much oftener than it is imagined.

From hence it ſeems, that death does not inevitably attend an entire organic reſt of what we call the ſolids of the body; nay, that one cannot be called dead, till the energy of the blood is far gone; that, though aſſiſted by all poſſible means, it can never be able to fill, and ſtimulate into contraction, the right *ſinus venoſus*, and auricle of the heart.

The ingenious author hopes, from this theory, that one, who, from all the above mentioned motions ceaſing, may with propriety be called dead, may recover and be properly ſaid to come to life again.

Much

Much of the terror of death conſiſts in the pangs, and convulſions, wherewith the agony ſeems attended; though we have reaſon to believe, that the pain, in ſuch caſes, is, ordinarily, not extremely acute: a courſe of pain, and ſickneſs, having uſually ſtupefied, and indiſpoſed the nerves for any quick ſenſation. However, various means have been thought of, for mitigating the agony of death. Lord Bacon conſiders this as part of the province of a phyſician: and that, not only when ſuch a mitigation may tend to a recovery, but alſo, when, there being no further hope, it can only tend to make the paſſage out of life more calm and eaſy; ſince complacency in death, which Auguſtus ſo much deſired, is no ſmall part of happineſs *. Phyſicians, when a patient is deſperate, make it a point of conſcience to give him over, as if it were enough to ſhew their ſkill by ſuch a prognoſtic, when they ought rather to be en-

* Auguſtus, quoties audiſſet cito ac nullo cruciatu defunctum quempiam, ſibi et ſuis εὐθανασίαν ſimilem (hoc enim et verbo uti ſolebat) precabatur.

SUET. AUG. c. 99.

deavouring to make him depart with more eaſe and tranquillity. Accordingly, the noble author ranks *Euthanaſia*, or the art of dying eaſily, among the deſiderata of ſcience.

This was a prevailing ſentiment of a worthy phyſician, with whom I had a very great intimacy; who, at near eighty years of age, during a long confinement with a ſevere fit of the gout, ſaid, that his moſt earneſt deſire, and the very beſt wiſh his friends could beſtow upon him, was, *Euthanaſia*.

Among ſome MSS. of this gentleman, I met with an account of the remarkable recovery of a young gentlewoman, his patient, after ſhe had been given over by two other phyſicians. He relates, that he ſaw the patient at ſix o'clock in the evening, after her phyſicians had, four or five hours before, made their departure, with this peremptory prognoſtic, That ſhe could not live out the night. He found her all over convulſed, in a languid ſweat, with a moſt pertinacious hiccough, pulſe intermitting, inſenſible, and ſpeechleſs. The mother of this patient was ſo ſhocked with the agony her daughter ſuffered,

fered, that ſhe prayed the Doctor would think of ſome method to quiet this violent agitation, in hopes, at leaſt, that it might prove a means of rendering the pangs of death more tolerable. The Doctor aſked for ſome liquid *laudanum*, intending to wet the patient's lips and the parts about her mouth with it; but there was none of this to be had, without ſending ſeveral miles for it. However, there happened to be at hand ſome ſyrup of *meconium*, which was put into her mouth with a tea-ſpoon, and continued to be applied, as much as it could be, for ſeveral hours, when it was obſerved that the patient grew ſtiller, and ſeemed to ſnore for a moment or two at a time, repeatedly. This encouraged them to perſevere; and, after ſome time, it was perceived that ſhe made now and then a ſmall deglutition. Still perſevering, it appeared evident that the ſpaſmodic motions grew leſs and leſs, the hiccough leſs frequent, reſpiration eaſier, ſleep longer, and with leſs ſnoring; and in twelve, or fourteen hours, ſhe was obſerved to move her eyes a little. A ſmall quantity of liquid was frequently attempted to be given in a tea-

ſpoon, and the *diacodium* continued between whiles, by which means ſhe was kept ſtill and quiet. The Doctor was deſired to ſtay another night, and was happy to ſee his patient better the next day; obſerving, that ſhe fixed her eyes upon him, with a ſenſibility ſhe had not ſhewn before. The Doctor left her at ten o'clock, deſiring that the ſame method might be purſued, till ſhe could have a nouriſhing clyſter given, which he then directed: but the next night ſhe had a natural evacuation by the bowels, which was ſucceeded alſo by another ſome hours after; with ſo good an effect, that, when the Doctor made his viſit the day following, he found her perfectly ſenſible, and come ſo much to her ſpeech, that he now thought her to be in a fair way of recovery; which, in ſhort, was effected by lenient and aperient medicines, the bark, and a milk-diet.

The Doctor remarks on this young lady's caſe, after having had the beſt information from her mother, that it was brought on her by the violent, irritable powers, that had been adopted by two Quack Doctors, *cantharides* and

and *euphorbium:* for he declared, he could never afterwards ſpeak of thoſe two gentlemen that had attended this patient, under any other denomination; and adds, that he himſelf viſited one of them in his laſt illneſs, after *cantharides* and *euphorbium* had been applied from head to foot, which had occaſioned ſo violent a ſtrangury, that he died of it.

De Haen gives a hiſtory of a cure, which a celebrated archiater wrought upon his own ſon; who, after all the means that had been uſed, to cure him of an iliac paſſion, proved ineffectual, gave him large doſes of *Sydenham's* liquid *laudanum*; with this only view, that he might die with leſs miſery: by the aſſiſtance of which, however, his vomiting ſtopped, the pain ceaſed, and he was perfectly reſtored to health.

It is evident, in both theſe caſes, that the intentions were founded upon the ſame principle, that of procuring an eaſy death; without any other view whatſoever.

Animal Nature ſhewn by Experiments.

THE moſt celebrated Profeſſor, Dr. *Boerhaave*, in order to acquire the knowledge of Animal Nature, found, for the object of his experiments, ſuch a perfect animal fluid as could be ſeparately collected without any heterogeneous parts; and which was certainly known to afford matter for the formation of all the parts of an animal body.

This fluid could be obtained only from the oviparous claſs of animals; it being no other than the white, or pellucid part of the egg, wherein the yolk appears to ſwim.

All the parts of a chick, as the blood, fleſh, bones, &c. are formed out of the bare white of the egg: for nothing but this is conſumed, during the time of the incubation of the hen; the yolk all the while remaining entire, and ſerving as the *placenta*, which appears to be vaſcular, or to conſiſt of

of a number of veſſels, to prepare the white, and make it a fit nouriſhment for the body of the chick. It is, therefore, an elaborate, and abſolutely finiſhed liquor, wonderfully deſigned by Nature to compoſe all the different organs of the oviparous tribe of animals: ſo that, in order chemically to diſcover the nature of animal bodies, we cannot have a more proper ſubject for our experiments than this liquor, which is wholly convertible into their ſubſtance, except the ſingle point or ſpeck thereof, which, proceeding from the male, lays the firſt rudiments of the fœtus, and without which no young is ever excluded.—By the examination of our ſenſes, the white of eggs appears a viſcous, mild, unactive, inſipid, inodorous liquor, capable of mixing with water; but incapable of cauſing pain to any part of the body, even the eye itſelf.

His firſt proceſs ſhews, that the white of egg is neither alkaline, nor acid.

Let fall any proportion of a known acid, as oil of vitriol, &c. though ever ſo ſtrong, upon the white of an egg, contained in a

proper glaſs, and it will cauſe no effer-veſcence, or ebullition therewith; and, conſequently, it is no alkali.

Upon another parcel of the white, let fall any quantity of a known alkali, as oil of tartar *per deliquium*, and this, likewiſe, will cauſe no ebullition; conſequently, therefore, the white is not an acid. Nor will it manifeſt any ſigns of either, by the other known experiments allowed to diſtinguiſh acids and alkalies.

That the ſerum of human blood, alſo, is neither acid, nor alkaline, it will appear, likewiſe, by ſimilar trial.

Indeed, if theſe animal fluids were either acid or alkaline, ſo far as, by the mixture of their oppoſites, to cauſe ſuch an ebullition in animals, as would, for inſtance, be made, by mixing two different parcels of the liquors of our preſent proceſs together, their bodies would be burſt to pieces with the force.

His ſecond proceſs ſhews, that the recent white of eggs diſſolves with a gentle heat, but concretes with a ſtronger.

Place

Place the white of a new-laid egg in a very gentle heat, ſcarce exceeding that of a healthy human body, and it will gradually grow thinner and thinner, till at length it totally liquefies, and becomes almoſt like urine. Expoſe alſo the white of another freſh egg, to twice the heat of the former, or one equal to that of boiling water, and it will immediately, without any conſiderable exhalation, be hardened, or concreted into a white, opake, dry, viſcous, fiſſil maſs, inodorous, inſipid, and not without difficulty to be reſolved again.

When a hen ſits upon an egg incapable of affording a chick, the heat of her body, which is much the ſame with that here firſt made uſe of, gradually liquefies the internal part thereof, and turns it to a fluor, which at length becomes of a putrid nature, like digeſted urine; whilſt, on the other hand, the ſame degree of heat gradually diſſolves down the white of a prolific egg, into fit nouriſhment for the chick. But, if the heat were conſiderably greater, we ſee, by our preſent proceſs, that this effect would not be

be produced; for the white would then be concreted, and become incapable of nouriſhing the embryo. And, that this alteration in the conſiſtence of the white of the egg cannot be owing to any evaporation of its humid parts, it is plain, from hence; that the ſame thing would immediately happen, if the egg were plunged entire with its ſhell, or only the white, into boiling water.—And this is likewiſe the caſe of the ſerum of the blood, and other juices of the human body.

Hence we are taught, that there is a ſurpriſing difference, as to the effect, between the action of different degrees of heat upon the ſame animal liquor; and no leſs than that of fluidity and firmneſs: whence it is eaſy to account for the good effects procured by the application of warm cataplaſms or fomentations, in tumors, and other caſes of ſurgery; and for their bad ones, when they are applied too hot to the part. Warm fomentations may diſcuſs and reſolve the concreted, or coagulated juices; but ſuch as are ſcalding hot, may eaſily confirm the tumor; or, if ſeated in a glandulous part,

part, turn it ſcirrhous; that is, into a ſubſtance that will not eaſily putrefy or diſſolve. Water that is made a little hotter than the blood of perſons in a fever, will ſoon thicken the ſerum and other animal fluids, and make them concrete. And it is certain, that a violent degree of heat is very pernicious to the human body, as occaſioning grievous obſtructions, or Polypus's therein; and of this we have daily inſtances in the blood of thoſe who labour under any inflammatory, or hot diſtemper: ſo that their opinion is the direct contrary to truth, who aſſert, as ſome phyſicians do, that heat, in general, reſolves and attenuates the animal juices; whereas any conſiderable degree thereof will certainly thicken, and make them viſcid. And thus, though it be generally ſuppoſed that hot water dilutes, and thins the fluids; yet, if it be drank more than blood-warm, the truth of the aſſertion may juſtly be queſtioned.

If a quantity of the white of recent eggs be put into a tall glaſs, and, with a gentle heat, not exceeding that of a healthy man, be digeſted for a few days, it will gradually become more fluid and tranſparent, and afterwards

wards begin to ſmell fetid and alkaline, till, at length, it will not coagulate at the fire, but make an efferveſcence with acids, exactly like putrefied urine: and if it be now diſtilled, it firſt affords an alkaline volatile ſpirit, inſtead of the inſipid water it would yield before digeſtion; and, if the operation be continued, it will proceed, in every reſpect, as the diſtillation of digeſted urine.

A ſingle grain, or even half that quantity, of this putrefied ſubſtance, being taken into the body, will, like the ſtrongeſt poiſon, preſently cauſe a violent nauſea, vomiting, and eructations, a fever, diarrhœa, &c. as *Bellini* tells us he has experienced. "And I myſelf," ſays *Boerhaave*, "have more than once ſeen it "given, without the knowledge of the perſon "who took it, and then alſo it had theſe ter-"rible effects; which, however, are imme-"diately ſtopped by drinking any acid liquor, "as vinegar, the juice of lemons, &c. Even "the ſcent thereof may, by a longer digeſtion, "be made to do the ſame." Having once continued the operation for the ſpace of eight days, and then coming to handle the glaſs, he

he was immediately ſeized with a violent nauſea, vertigo, horror, anorexia, &c. "And hence", ſays he, "we may account for the "origin of abundance of diſeaſes."

Thus, for inſtance, it is no wonder, if the bile, by ſtagnating, as it ſometimes does, that is, by digeſting in the warm human body, receives ſuch a change as to produce the *cholera morbus*, with the *nauſea*, vomiting, and other grievous ſymptoms, wherewith it is ſometimes attended. The ſalts of animal bodies, however, never become of an alkaline, or pernicious nature, but by heat, digeſtion, ſtagnation, or putrefaction, which latter is the conſequence of ſtagnation, and never happens without it: but when once they turn volatile or alkaline, the life of the patient is then immediately in danger of a gangrene, mortification, apoplexy, or the like. And whether the plague, the ſymptoms whereof ſucceed each other ſo faſt, be not owing to ſome ſuch cauſe as this, is a proper ſubject of enquiry for phyſicians.

The like experiment ſhews, alſo, that the ſerum of the blood will putrefy by digeſtion in

in the ſame manner: and if the digeſtion ſhould be long continued, as for the ſpace of ſeveral days, the matter, or its oil, might be thereby rendered ſo intolerably fetid, as to make the operation dangerous; for the bare ſcent thereof would then be capable of much miſchief, even at a diſtance.

Hence we learn the effects of a gentle warmth upon the blood, and ſee that this is a proper means to diſſolve it when coagulated; and, by making it finer, to render it fit to paſs the ſmaller canals of the body, where it would otherwiſe not enter at all, or cauſe obſtructions. And this proceſs alone will help us to account for many diſeaſes of the human body, and the methods of cure. Thus the viſcous matter, which is like leather, upon the extravaſated blood of pleuritic perſons, may, by gentle heat, be almoſt wholly reſolved again into ſerum; whereas, if it ſhould retain its tenacity, while it is flowing in the veſſels, it would cauſe obſtructions, and be ſtill more condenſed therein. So, likewiſe, in all inflammatory diſtempers, to keep the body moderately warm, is the way to

to thin the fluids, and haſten the criſis, or the diſcharge of the morbific matter, by encouraging or promoting ſome evacuation or other.—But when the blood comes to be extravaſated, and ſtagnates in any part of the body, ſuppoſe in the cavity of the thorax, or abdomen, being now no longer agitated by the force of the circulation, it will firſt coagulate, and then ſoon begin to reſolve, and at length putrefy, and become alkaline, ſharp, and corroſive: whence, if lodged in the cavity of the thorax, it might bring on a phthiſis, by fretting away the tender ſubſtance of the lungs; or cauſe the empyema: or, if in the abdomen, deſtroy the texture of the lymphatic veſſels, whence they diſtil out their liquor, and form the aſcites. And after this manner may numberleſs other diſtempers be produced.

Hence we ſee the great affinity there is between the white of eggs and the ſerum of the blood; as likewiſe the effects producible by fire upon the human body. And as an increaſed heat has the power of inſtantly coagulating the animal fluids, it is a preſent

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and effectual remedy in the bite of a mad dog, or other venomous animal, immediately to burn the part with a hot iron, applied, or rather thrûſt deep into the wound: for, by this means, the juices about the part being coagulated, and an eſchar produced, all communication of thepoiſon to any other veſſels is ſtopped, and thus the cure may be readily effected;—not that the hot iron draws out the poiſon, as is vulgarly imagined, but renders the parts incapable of being penetrated or affected thereby. And hence it is that the pain occaſioned by burns may be leſſened or taken off by fire, or a greater heat than that which made them; for this will coagulate the juices about the part, and thereby render it leſs ſenſible of the pain. Thus a violent degree of heat, we ſee, deſtroys the parts of the body, or coagulates its juices; whilſt a leſs diſſolves, and turns them into ichor. And the like effect will be produced by motion, attrition, or any increaſed velocity of the blood and juices, as well as by direct heat.

Experiments ſhew, alſo, that the ſerum of the

the blood, and the white of eggs, are alike coagulable with alcohol: for inſtance, if the ſerum, or blood itſelf be digeſted, though ever ſo long, with pure alcohol, it will not become fetid, or ſhew any ſigns of corruption; for neither will the ſalts turn alkaline, nor its oils putrefy,—which, indeed, is very ſurprizing. And this may ſerve to ſhew us what a wonderful balſamic virtue there is in alcohol, which is plainly owing to its coagulating principle: and on this account it is, that thoſe, who are given to drink too freely of brandies or ſpirituous liquors, are frequently affected with polypuſes, or obſtructions, ariſing from the concretion of the blood in the larger veſſels, the palpitation of the heart, the dropſy, dry criſpy nerves, and other diſorders of this kind, which prove generally mortal.

Hence the wonderful effects of alcohol in ſphacelations and ſpreading gangrenes: a moſt remarkable inſtance whereof occurs in the German Tranſactions, where we find that a very aged woman at the Hague, having a violent gangrene, which ſpread from the

middle of her foot, upon half of her leg; and the phyſicians declining to take it off by amputation, on account of her great age and infirmity; they ordered, to ſtop the growing evil, the part to be frequently fomented with pure alcohol,—which proved ſo ſucceſsful, that, to their great ſurprize, it not only prevented the farther ſpreading of the gangrene, but even embalmed the black and mortified part, dry as it was, like mummy; upon which the woman recovered, and lived for two years after, with her leg thus preſerved from further alteration. And this relation may ſerve to ſhew, that gangrenes are not contagious, or of a ſpreading nature, but by the means of ichor, or corrupted matter, which comes in contact with the adjacent parts.

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The Solids and Fluids of Animals, how compounded.

IT is a clear propoſition, and can admit of no doubt, that, according to the doctrine of *Boerhaave*, the bodies of all living animals are continually waſting, and repairing, in all their parts. The truth of it is evident, even in the hardeſt, and moſt ſolid parts of animal bodies. The nails, and hair, which being cut, ſoon grow again to their former length; and the teeth, and all other ſolid parts, wear, by frequent uſe; though no ſenſible diminution is found of their ſubſtance.

But if the ſolids thus conſtantly fly off, and recruit again; the fluids muſt unqueſtionably do ſo too. And, in effect, we ſee that animal bodies increaſe in every part, from the ſmalleſt phyſical point, till they arrive at their full growth.

Animals, therefore, muſt neceſſarily be compoſed of what they take in as aliment;

which, by their vital powers, is converted into their own ſubſtance.

Perhaps, alſo, the bodies of animals may receive part of their aliment from the air: for, as *Malpighi* has curiouſly obſerved, eggs gain in weight whilſt brooded upon by the hen; which addition of matter muſt either proceed from the effluvia of the hen, or from the *atmoſphere*. But that it does not come from the hen is manifeſt, becauſe in *Egypt* chickens are frequently hatched by the heat of an oven.

The food of all animals is either of a vegetable or animal nature.

There are two kinds of animals that differ in their food; thoſe which feed entirely upon vegetables, as the ox; and thoſe which devour the fleſh of other creatures, as the lion: but man is an animal of an indifferent kind, that can ſupport himſelf either with vegetables, or fleſh alone.

The bodies of all animals, therefore, and even of men, conſiſt, either mediately, or immediately, of vegetables.

The greateſt part of the animals which men

men uſe for food, are themſelves immediately fed with nothing but vegetables, as *ſheep*, *oxen*, *rabbits*, &c. But *fiſh*, indeed, often take down *inſects*, and ſo do ſome kinds of *fowl*; but then theſe *inſects* were either fed with vegetables, or it will come to that at the laſt.

Our next attempt will be to analize that part of animals which has received the leaſt alteration in their bodies, or but juſt begins to loſe the vegetable, and put on the animal nature.

This part muſt be originally of a vegetable product that has felt the vital forces of the body, mixed with the blood, paſſed through the arteries and veins, and been ſoon ſeparated again. And this can be no other than chyle from vegetables, turned to milk, and ſeparated in the breaſts.

The parts of all animal bodies, as well ſolid as fluid, may receive their nouriſhment and growth from milk alone.

There have been inſtances of thoſe who lived upon nothing but milk: and the body of a child, at the end of ſome months after its birth, is little more than a compoſition of the

milk of the mother; the parts it brought with it into the world being changed for others ſupplied by the nouriſhment, in the ſame manner as the body of an ox is a compoſition of graſs. Thus, by the vital actions, the milk is made to paſs through all the changes of the blood, *ſerum*, *lympha*, *nervous fluid*, or *animal ſpirits*, which ſeem to be the immediate matter of *nutrition* to all the ſolids.

The milk of ſuch animals as are only fed with vegetables being drawn from the breaſt, and permitted to ſtand in a warm place, ſoon ſeparates of its own accord, into a light and white kind of oil, which riſes to the top, and is called *cream*; and into a thinner, aqueous, bluer, and more ponderous liquor, vulgarly called, when the *cream* is taken off, by the name of *ſkimmed milk*.

Milk of the ſeveral kinds of animals differs but little as to its ſmell, taſte, and other properties; but that drawn from the breaſts of women is the ſweeteſt: the neareſt to which is *aſſes* milk, which indeed has a ſaccharine ſweetneſs, and comes almoſt up to the human. This is ſucceeded in virtue and goodneſs by that

that of *mares*, which is better than that of *goats*; yet even this exceeds that of ſheep, as theirs does that of *cows*, which is the coarſeſt of all.

Neither of the two parts into which new milk ſpontaneouſly ſeparates, is of itſelf either acid, alkaline, or acrimonious, to the ſmell or taſte.

It is true, indeed, that theſe parts turn acid by ſtanding for ſome time; but this does not infer, that, contrary to all the evidence of our ſenſes, they naturally contain an acid. Neither are they in the leaſt acrimonious; for, being let fall into the eye, they cauſe no manner of pain or ſenſation of ſharpneſs.

From theſe axioms, or general truths, we may draw the following *corollaries*, which are no leſs certain than they. (1.) All the parts of a human body might once materially exiſt in the form of *milk*. (2) *Chyle*, though really a vegetable fluid, is an imperfect milk, or the rudiments and baſis thereof; and exhibits many of the *phenomena* afforded by vegetables, particularly in its flatulency, the effervescence it occaſions, &c. (3.) Milk is a

kind of emulſion, or white, oily, animal liquor, prepared orignally from vegetables by maſtication, mixing with the *ſaliva*, the *bile*, and the *pancreatic juice*, the blood circulating with it, and being at length ſeparated from it in the breaſts. It differs, however, from a true vegetable emulſion in two reſpects, viz. firſt by coagulating into a curdy matter with acids, capable of forming *cheeſe*, which *chyle* and all true *emulſions* will not do; the utmoſt that acids can here procure, being a *tophaceous*, or *chalky kind of ſubſtance*, but never a *cheeſy matter*: and, ſecondly, acids precipitate a larger quantity out of it, than it can do out of *emulſions*. Theſe particulars being premiſed, we may now proceed to our experiments, and begin by proving that new milk is neither acid nor alkaline.

1. If oil of *tartar per deliquium*, and *ſtrong acid ſpirit*, be poured into ſeparate cups of warm *new milk*, it will cauſe no motion or ebullition in either of them: but the milk that is mixed with the *acid ſpirit*, will preſently become thicker than it was before.

Now mix together the two parcels of milk, with

with which the experiments were made, and a great effervescence will immediately arise.

2. That *milk* turns acid by digestion.

Let any quantity of *new milk*, drawn from a sound *animal*, that feeds only upon vegetables, at the distance of about eight hours from her feeding, stand to digest in a clean open vessel of glass, with a heat equal to that of a man in health, and it will soon begin to throw up to its surface a thick, unctuous, creamy or butyraceous part, which will thus rise in a considerable quantity; a much larger proportion of a thinner, or serous liquor, remaining below. Both of them, at first, are sweet to the taste, or manifest no kind of acidity; but by degrees they both turn tart, and, at the end of twelve days from the first of the operation, attain their highest degree of acidity, which is very considerable.

This process will be the sooner finished in *summer*, by reason, as well of the additional warmth, as of the tart, juicy herbage, whereon the cattle feed at that season of the year: but it proceeds slower in the *winter*, when they feed on hay; yet, even in this cold season,

ſon, it will at length ſucceed. But, if the milk for this experiment be drawn from ſuch animals as feed ſolely upon fleſh, or have been withheld from food for twenty-four hours, ſuch as labour under feveriſh diſorders, or have juſt before performed ſome extraordinary motion, or undergone hard labour, it will rather putrefy, or turn rancid, and run into ichor, then change of an acid nature. One of the firſt ſigns of this diſpoſition, is its ſaline taſte; ſo that it always may be concluded, that *when milk is brackiſh upon the tongue, it then begins to putrefy.*

3. That boiling milk will ſtrongly coagulate with acids.

Gradually pour *Spirit of Nitre*, or any other acid, to a quantity of milk boiling over the fire, and no conflict will be made thereby; but the liquor will preſently divide into two different parts, the one thinner, and the other much thicker than milk, notwithſtanding the action of the fire upon the matter.

The effect is found to be the ſame, in all kinds of milk yet known: which by this means

means is formed into *curd*, whereof *cheeſe* is made; and a clear thin liquor, or *ſerum*, which now turns ſpontaneouſly acid. The coagulum formed upon this ſeparation, may, by preſſure, and the evaporation of its moiſture, in time be reduced almoſt to the hardneſs of a ſtone; as we ſee in ſome particular ſorts of *cheeſe*: ſo that it is no wonder, that bones made out of milk are of that ſtrength, and ſolidity, we find them. Something of this kind will alſo happen in *emulſions*, but in a leſs degree; for which reaſon, when we preſcribe emulſions, we ſhould be cautious not to mix acids along with them.

This proceſs may ſerve to ſhew us in what caſes, and conſtitutions, it will be improper to uſe milk: for, if it ſhould be taken by perſons, whoſe bodies abound with acids, the ſame thing will neceſſarily happen there as it did in our experiment; that is, the milk will be ſeparated into a thin ſerous fluid, and a ſtrong coagulum, which, turning *grumous*, may cauſe obſtructions in the *viſcera*, whilſt it ceaſes to be mixed and diluted with the *ſerum*, that, inſtead of performing this office, may

may now go away in *fetid* ſweat, leaving the body *pale, faint, and weak.* And this unheeded cauſe may give birth to a *pale complexion, a cacochymia, and various chronic diſeaſes.*

4. That milk turns red, by being boiled with alkalies.

If to a quantity of new milk, made boiling hot by the fire, any fixed alkali, as the *ſalt of tartar,* or its *oil* run *per deliquium,* be added by degrees, there will a lighter kind of *coagulum* be made, than was before produced by the acid; and the milk, by boiling, will preſently change to a yellow colour, and run through all the intermediate degrees, till at length it ſtops in an intenſe red.

The *coagulum,* and changes of colour, will be ſtronger, and more ſuddenly made, in proportion to the ſtrength of the *alkali,* and continuance of the ebullition. Whence we may ſee, that milk has a great propenſity to turn from its native white into a red colour. The milk of all animals, in a ſtate of health, is naturally white, whatever be the colour of the aliment they take in; and will exhibit the ſame phenomena

nomena by the treatment of this proceſs: or, if the alkali be very ſtrong, and the operation continued long, it will change at length into a duſky red, or dark colour, and even into a black colour. Whence it is eaſy to ſee why the *chyle* ſo readily changes into a red colour, or blood; for the animal juices, with which it mixes in the body, contain no acid, but rather incline to an alkaline nature. And when any animal that gives ſuck, becomes feveriſh, the milk turns from its genuine whiteneſs to a yellow, and becomes, in a manner, ſanious and coagulated.

When the milk of a *nurſe* is in this ſtate, the infant manifeſts a very great averſion to, and diſlike of it; and, if the fever continues long, the breaſts grow hard, and at length impoſtumate, ſo as to prove difficult of cure. The generality of phyſicians will needs have theſe diſorders to proceed from a certain, imaginary, peccant acid in the body; when nothing can be plainer, as may be learnt from the preſent proceſs, that they are owing to the action of an *alkali*. And hence it was, that, in the terrible contagion which happened among

among the *cows in Holland*, in the year 1714, their milk proved exceeding thick, yellow, and almoſt putrefied, before it came from them. And, what is very ſurprizing, this change was made in it ſo ſuddenly, that a countryman, of whom ſome white milk had been purchaſed but the evening before, for chemical experiments, complained the very next morning, that he could now get nothing from the ſame cow, but a thick, pappy, yellow matter, inſtead of milk.

What we have hitherto ſhewn of milk holds true, provided it be drawn from any of thoſe animals that feed entirely upon vegetables; and at a time when they are in a ſtate of health: but, if the creature which afforded the milk, labours under any violent diſtemper, either of an acid, or putrid nature, the phenomena will be quite different. And the ſame muſt be expected, if the animal that gave the milk, feeds only upon animals. The *Phyſicians* who preſcribe to the diſeaſes of infants, ought carefully to take notice of theſe obſervations: for, if a *nurſe* ſhould entirely abſtain from acid vegetables, as *wine, malt-liquors*,

liquors, &c. and uſe only water, or the decoction of animal ſubſtances, for her drink; and feed upon nothing but the fleſh of animals, as fiſh, &c. her milk would ſcarce be capable of turning ſour, but would rather putrefy, and ſmell ſtrong like urine; and the child that drew her breaſt, would never be free from a fever:—which is often the caſe of infants of wealthy parents; the nurſe being prepoſterouſly withheld, by the tender mother, from the uſe of whatever food is of an acid nature, and confined to live altogether upon *animal diet*, as the moſt nutrimental. On the contrary, the children of the poor, whoſe mothers are principally ſuſtained by food of an acid nature, or what in ſome meaſure inclines thereto, are much leſs ſubject to fevers, but oftener afflicted with thoſe diſeaſes which owe their riſe to acids. The cure of both theſe is beſt effected by the change of diet in the nurſe, from alkaline to acid, or from acid to alkaline. Thus, when the diſeaſes of young children proceed from an acid cauſe, which may be learnt from the ſcent of their fæces and eructations, as alſo from

from a preternatural diſtenſion of the body, and paleneſs of the fleſh, the diet of the nurſe ſhould conſiſt of *fiſh*, *fleſh*, and the liquor in which they are boiled; the uſe of *bread*, *wine*, and other things of an *acid nature*, being forborne: but, if the infant labours under a *burning fever*, appears *red*, *hot*, &c. the *nurſe* ſhould be treated in the contrary manner, with *acids*, and ſuch aliment as is tart and cooling. And thus we are taught the nature of that liquor of which the human body may be entirely compoſed; and which receives ſo ſudden an alteration therein, that no ſigns of it can be found twelve hours after it is once admitted into the blood; as the excellent *Dr. Lower* has ſhewn by experiment: upon which account, no woman that gives ſuck ought to faſt above twelve hours, if ſhe would afford good milk to the infant at her breaſt. Hence, likewiſe, we are given to ſee the reaſon of ſuch phenomena, both in *acute* and *chronic diſeaſes*; as, particularly, the redneſs and heat of the body, in the former; and its paleneſs, &c. in the latter: theſe generally proceeding from

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an *acid*, and thoſe from an *alkaline* cauſe. And hence, laſtly, we learn a neceſſary caution, in the choice of a *nurſe*, viz. that her milk be perfectly white; a tendency to yellowneſs in it, being a ſure, and early ſymptom of a *fever*.

Digeſtion and Chylification.

THE operation of digeſtion ſucceeds maſtication and deglutition. It includes chylification, and is ſucceeded by ſanguification and nutrition.

Our food, in chewing, is moiſtened with a liquor ſupplied by the ſalival glands, and formed into a kind of paſte. Thus prepared, it paſſes through the *æſophagus* into the ſtomach, there to ferment. This fermentation is cauſed, 1. By the ſalival juice, which is a ferment, and has the ſame effect on the aliment, that leaven or yeaſt has on paſte. 2. By the heat of the ſtomach, viſcera of the abdomen, and even excrements; which here have nearly the ſame effect on foods, as a dunghill has on matters laid by the chemiſts to digeſt therein. 3. By the remains of foods left adhering in the rugæ, or folds of the ſtomach, and there turned ſour and acrimonious. 4. By the compreſſion of the muſcles of the abdomen, and diaphragm. 5. By the liquor

liquor which the repeated compreſſion of thoſe muſcles occaſions to drip from the glands of the ſtomach. And, 6. according to the ſentiment of ſome modern phyſicians, by the air itſelf, which being mixed, and embarraſſed in the aliments, dilates by the heat of the ſtomach, and ſeparates the parts of the food. Theſe cauſes all contribute to attenuate, and divide the food, ſo as to convert it into a cineritious matter, called chyle.

The chyle, Dr. *Drake* obſerves, is a mixture of the oily and aqueous parts of the food, incorporated with the ſaline ones; which, while they yet remain mixed with the groſſer parts in the ſtomach, make a thick, whitiſh, party-fluid maſs, called chyme: which, as ſoon as it is reduced to a conſiſtence, looſe enough to be obedient to the preſſure, and periſtaltic motion of the ſtomach, is gradually thruſt out at the *pylorus* into the *duodenum*, and then is denominated chyle.

The fabrick of the ſtomach being conſidered, the heat of the circumjacent parts, the pulſations of innumerable arteries, the great

ſtrokes of the aorta underneath, the conſtant compreſſion of the diaphragma and abdominal muſcles; it muſt neceſſarily follow, that the finer parts of the aliment will be firſt expelled the ſtomach, and the groſſer will remain; till, by the repeated action of the fluids, and the contraction and pulſation of the ſolids, they alſo become fine enough to go off. Thus is the ſtomach left empty, and, by means of its muſcular coat, reduced to a ſtate of contraction, and appetite is renewed.

The chyle, in the *duodenum*, is purified, by mixing with the pancreatic juice and the bile, which thin it, precipitate its groſſer parts, and render it more fluid: and, thus perfected, and attenuated, it enters the lacteal veins, which convey it into the *receptaculum chyli*, where it is further diluted by the lympha, which is brought hither in abundance. Hence it ariſes into the thoracic duct, and enters the ſubclavian vein; where being taken up by the aſcending cava, it is poured into the right ventricle of the heart. The chyle thus mixing with the blood, embarraſſes

barraſſes the globules thereof, and thus abates its motion: and hence is that inclination to go to ſleep after meals. But, by degrees, the blood communicates its motion to the chyle; and, by its volatile and exalted parts, together with the ſaline and nitrous parts of the air, ſubtilizes, and gives it its laſt perfection. Then the digeſtion is finiſhed; and the foods, being by ſo many changes rendered the immediate matter of nutrition, are carried by the blood into all parts of the body, to repair and fill the vacancies of ſuch as are continually diſſipating, and exhaling; or even to add new ones.

As to the groſſer parts of the foods, ſeparated from the chyle, they aſſume the colour of excrements from the bile; and their rank ſmell they derive from the coarſer ſulphurs thereof. Theſe ſulphurs, and ſalts of the excrements, ſerve, after they have paſſed through the inteſtines, and are arrived at the laſt, which is the rectum, to vellicate the muſcles thereof, and diſpoſe them to relax, and thus to apprize Nature of a neceſſity to diſcharge.

The ſeparation of the urine from the blood may be eſteemed a part of perfect digeſtion; the deſign of ſuch ſeparation being to render the blood more pure and balſamic, and of conſequence more fit for nutrition; which the ſalts, the urine abounds withal, greatly prevented. This ſeparation is thus performed: the branches of the emulgent arteries, which terminate in the glands, whereof the ſubſtance of the kidneys is compoſed, carry the blood thither; where a ſeroſity is ſeparated from the blood, by means of the pores in the glands of the kidneys: thoſe pores repreſenting the holes in a ſieve, which only let paſs ſuch things as are of a leſs diameter than themſelves. This ſeroſity, called urine, is diſcharged hence into ſeveral little tubes, which, joining into a kind of pyramids, yield their humour into the pelvis, whence it runs through the ureters into the bladder.

Sanguification.

Sanguification.

SAnguification ſucceeds chylification, and is followed by nutrition: it is the action whereby chyle is converted into blood, and it is thus effected. The chyle, having paſſed the lacteals of the ſeveral kinds, is delivered into the blood at the ſubclavian; whence the two humours paſs together to the right ventricle of the heart, where being yet more intimately mixed, they circulate together through the whole body; till, after ſeveral circulations, and depurations at the ſeveral colatures and ſtrainers of the body, they become aſſimilated, or, as the chemiſts call it, cohobated, ſo as only to make one uniform compound maſs, which appears to be nothing elſe but chyle altered by the artifice of Nature, and exalted into blood. In effect, it does not appear that any thing extraneous is mixed with the circulating liquor but chyle, excepting what was before ſeparated from it for particular occaſions; unleſs, perhaps, it ſhould receive ſome portion of

air in the lungs, which is a point long diſputed, and yet ſcarce aſcertained.

Indeed, that there is a quantity of air mixed with the blood, and circulating with it, is granted; but whether this be any more than what was at firſt contained in the bodies whereof the chyle was formed, is much doubted.

We may admit of two degrees of ſanguification; the firſt amounting to no more than a confuſion, or ſuch an intimate mixture of parts, as ſuffices to confound the different coloured liquors, as that the whiteneſs of the chyle ſhall be loſt or drowned in the redneſs of the blood, ſo as never more to appear in its own ſhape and colour. This we ſuppoſe may be effected by repeated circulations alone; though how many circulations are neceſſary thereto, it is difficult to determine.

The ſecond degree of ſanguification, is, when the parts of the chyle are ſo exalted, or comminuted and ſubtilized, as to loſe all tendency to a coagulatory ſeparation, ſuch as they have in chyle and milk.

To theſe two degrees may be added a third, wherein

wherein the fibres and filaments of the crude blood are ſo broken and blended with the ſerum, as not to be again ſeparable therefrom. This is a morbid ſanguification, ſuch as happens in fevers, &c. attended with a bloody ſweat, purple ſpots, &c.

All theſe degrees of ſanguification, Dr. *Drake* makes no doubt, are procured by reiterated circulations, wherein as well the inteſtine, as the progreſſive motion, conſpire to the mixing and comminuting of the adventitious parts. Doubtleſs they have their ſtated period, wherein they are in perfection; though where preciſely to fix it, we do not know.

Nu-

Nutrition.

BY the continual motion of the fluids in the minute veſſels of the body, and the action of the muſcles, &c. ſmall particles are of neceſſity worn off from the ſolids, become mixed with the fluids, move with them, and are at length eliminated and exhaled through the pores: and, at the ſame time, the fluids, diminiſhed as they are by a conſtant attrition, apply to the orifices of the perſpiring veſſels, and vaniſh out of the body.

Hence the animal body, by the very condition of its frame, becomes ſoon liable to deſtruction.

To preſerve life, therefore, it is neceſſary, that a reſtitution be made to the juices and ſolids of the body, equal and ſimilar to what is loſt in thoſe motions; which is what we call the action of nutrition.

Now, the loſt juices are eaſily ſupplied by meat, drink, air, &c. taken into the ſtomach, digeſted, converted into chyle, then into blood, and

and thence ſecreted by the proper ducts, and carried by the action of the body to the proper receptacles.

But the nutrition of the ſolid parts is much more obſcure. This, indeed, has proved the ſubject of infinite doubts and differences among authors; nor had we any rational or ſatisfactory account of the ſame, till that of the accurate *Boerhaave*, whoſe doctrine is as follows:

Every ſolid part of the body conſiſts in other leſſer ones, in all repects like the larger; veſſels, v. gr. of veſicles, and thoſe of others ſtill ſmaller; bones of oſſicles, &c. which ſtructure goes beyond all limits of ſenſe, however aſſiſted by art; as appears by the experiments and obſervations of *Malpighi*, *Ruyſch*, *Leewenhoeck*, and *Hook*. Yet it is ſcarce poſſible this diviſion and ſubdiviſion ſhould be infinite, as that of foods and juices is.

Again, it appears from microſcopes, injections, ſmall wounds, exſiccations, &c. that the ſolid parts of the body are very ſmall, compared with the fluids; and it is almoſt demonſtrable, from conſidering the riſe and generation of the veſſels, and the reſolution of the

greater

greater veſſels into their ſmaller conſtituent ones, that all the ſolid maſs of the body is conſtructed of mere nerves, as its elements.

And, in effect, all this maſs, an incredibly ſmall particle only excepted, at firſt aroſe out of what was a very ſmall colliquament, much like the nervous juice itſelf; as is abundantly ſhewn by the great *Malpighi*, in his two treatiſes on incubated eggs. For neither does the white of the egg nouriſh, till, by means of the incubation, it have paſſed innumerable degrees of fluidity, from its firſt thickneſs to that exceeding ſubtilty wherein it terminates. But, even then, the liquor thus given in the embryo is exceedingly thick, in compariſon with what it is to be, when converted into its veſſels and viſcera.

Now, the firſt tender ſolids ariſing from this ſubtile humour, do again paſs infinite intermediate degrees, ere they arrive at their utmoſt ſtate and conſiſtence; as is ſhewn by *Malpighi* in eggs, and by *Ruyſch* in embryo's and fœtus's. Hence, therefore, it follows, that the ſolids, in their firſt formation out of the liquids, whence they ariſe, only differ from them in reſt, coheſion,

heſion, and figure. Therefore, ſuch a particle, now in its fluid ſtate, will become a part of the ſolid to be formed out of it, as ſoon as there happens to be a power to effect its coheſion with the other ſolid parts; howſoever that coheſion be effected.

This coheſion is eaſily produced in a fibre already formed, if there happen to be a proper cavity in the ſolid, left open by ſome loſt particle in the fluid, anſwerable thereto in bulk, figure, and nature; and, laſtly, if there be a power wherewithal to intrude it into that place, or accommodate it thereto. Thus will ariſe a real nutrition of the ſolids in the minute veſſels, by whoſe union the large ones are formed; that is, in the nerves, or in veſſels ſimilar thereto: which being impracticable by any other liquid than that brought into theſe veſſels, it appears very evident, that the nervous juice, at leaſt a juice perfectly like it, is the immediate matter of nutrition: whence nutrition appears one of the laſt and moſt perfect actions in the body; ſince to have this laudable, all the precedent actions muſt of neceſſity have been ſo.

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The chyle, therefore, which ſome make the immediate matter of nutrition, is, indeed, fitted to fill the larger veſſels; but it cannot nouriſh or reſtore them. This, when attenuated, changed, more intimately mixed in the lungs by means of reſpiration, and thus fitted for the paſſage of certain veſſels, is, indeed, rendered fitter, yet far from being quite fit, to be the matter of nutrition.

But, by the repeated action of the lungs, the viſcera, veſſels, &c. there is formed out of this humour, a ſoft, tenacious, plaſtic, inſipid ſerum, which, thickening by the fire, becomes perfectly like the white of an egg. This fluid, therefore, has in it all the conditions found in that, from whence, by ſure experience, we know all the ſolid parts of an animal ariſe, by mere incubation. It is, therefore, a ſtep nearer, but is not yet quite diſpoſed for nouriſhment. Much leſs is the cruor, or red globular part of the blood ſo. Neither are yet fitted to enter the veſſels; yet both the one and the other are, by different authors, made the nutritive juice.

But as the heat of incubation, ſo the action of

of the viſcera and veſſels on the ſerum introduces various changes therein; till at length a part of it be rendered ſubtile enough for the purpoſe required. This, when exhauſted, is inſtantly repaired: and thus we have the true immediate matter of nutrition.

But this ſame humour, loſing too many of its oily parts, by many repeated circulations, is rendered too ſharp; and, being likewiſe ſtripped of its moſt liquid parts, from the ſame cauſe, becomes too denſe, and is thus rendered unfit for this ſecretion. Hence the neceſſity of new chyle, and new food, to keep up nutrition.

The matter of Nutrition thus aſcertained; the manner wherein, and the cauſe whereby it is effected, are as follow:—a juice being driven directly through a full, conic or cylindric, elaſtic or rigid canal; if its courſe be from a wider to a narrower part, or if it have any thing to oppoſe its motion; will endeavour to ſtretch the ſides of its canal according to the axis of its length. This muſt be the caſe every-where in the body, except, perhaps, in the veins and receptacles. By this niſus, or endeavour,

endeavour, how weak ſoever, continually repeated, the veſſels will be inſenſibly lengthened out; and, in lengthening, they will be made more and more ſlender. Hence the laſt extremities of the veſſels, which in man are extremely ſmall, are continually ſtretched, and rendered leſs and leſs coherent, i. e. ſtill nearer and nearer to a diſſolution; and thus at length will they cohere ſo weakly, as ſcarce to differ from fluids.

While ſuch motion goes on, therefore, and the propulſion is continued, there will, of neceſſity, happen theſe two things: firſt, the outmoſt particles of the minuteſt tubes, being torn off, will again be converted into a kind of humour, what part of the body ſoever they ſtick in: ſecondly, the ſmalleſt particles, which by their union compoſed the ſlendereſt fibrillæ, will be ſo ſeparated from each other, as to leave open interſtices in thoſe places, where, before, they cohered. Both theſe effects will be produced at all times, and in all parts of the body, ſo long as life continues; eſpecially where Nature is ſtrong, and the actions of the body violent. But the ſame humour

humour whereby theſe effects are produced, containing abundance of particles ſimilar to thoſe thus ſeparated and loſt, conveys and applies them to thoſe interſtices, by that very impetus whereby it endeavours to diſtend the canals; and, thus intercepted, at length, it forms, adapts, and faſtens them, ſo as to adhere in the ſame manner as the former.

The matter, preparation, application, energy of motion, ſtill remaining the ſame; what from time to time is loſt, is thus preſently reſtored; and the ſolids continue in the ſame ſtate as before, i. e. they are perpetually nouriſhed, and ſupplied, and preſerved.

In this the Creator's wiſdom is very conſpicuous; that the greater the loſs is, the more copious is the ſupply; and that thoſe parts, firſt ſpent in the action of the body, are the firſt reſtored.

Farther, it is evident, that the newer, the more tender, and the nearer to the moving cauſe theſe veſſels are, the more eaſily will they be lengthened, diſtended, deſtroyed, and repaired. Our bodies, therefore, the nearer to

their origin, the more do they grow: for, the action ſtill continuing, the greater veſſels become more extended by their fluid; and, at the ſame time, the ſmaller, whereof the membranes or coats of the larger ſort are compoſed, are compreſſed, dried, and at laſt concreted, and grow up; whence ariſes a firmneſs, indeed, of the fibres, but a loſs of the veſicles.

Thus, what were formerly veſſels, commence mere hard ligaments; and thus, the fluids being once fixed, the ſeveral veſſels coaleſce. From the concurrence of theſe cauſes, ariſe the ſtrength, hardneſs, rigidity, and thickneſs of the ſolid parts.

Hence the number of veſſels is greateſt in embryo's, and as age comes on, it ſenſibly diminiſhes; and hence it is that their weakneſs conſtantly declines, and their ſtrength and firmneſs increaſes. In young people, therefore, the quantity of humours is redundant, and greatly exceeds the ſolids: in old men the ſolids exceed the fluids. And, hence, we ſee the reaſon, manner and appearance of growth, ſtate, declenſion, and, at length, of death, from pure old-age.

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A perſon who conſiders this account, and compares it with what is actually obſervable in the body, will find every circumſtance to obtain: thus the whole *cuticula* is every where, and at all times, conſtantly deſquammating, peeling off, and again renewing; and thus the hair, nails, teeth, continually rubbed, torn, and worn off, come again; parts taken off from the veſſels, and the bones, ſoon grow again. And the ſordes, or filth, rubbed off from the extremities of the veſſels, when examined by a microſcope, or diluted and viewed in water, appear plainly to conſiſt both of ſolid and fluid parts; and thoſe carried off by waſhing, ſhaving, &c. are the ſame.

Hence, too, we ſee that a general increaſe of the bulk of the body, with regard to habit, as in fat, fleſhy, brawny perſons, does not ariſe from any increaſe of the ſolids, but by their extenſion into larger cavities, crowded with ſtagnant humours. And hence fatneſs becomes hurtful, as it loads, weakens, and ſuffocates.

Whence ariſes a very conſiderable diſtinction between Nutrition and Repletion; to

which a phyſician muſt have ſpecial regard: the one ſtrengthening and condenſing the veſſels, the other weakening, looſening, and extending the ſame.

Hence, laſtly, we ſee why the fabric of the ſolids is not deſtroyed by the contained fluids; how our machine comes to ſubſiſt ſo long; why, when a nerve is corrupted, the nutrition of that part it belongs to, ceaſes; and why the ſame obtains in an artery: why in an embryo there are no ſolids, in a fœtus very few, in old men a great deal; and why even the nerves, tendons, arteries, and receptacles, become firſt cartilaginous, and then bony.

Secretion.

THE *blood* is the general ſource of all the different juices, in the bodies of animals; and from it they are all ſecerned, by particular organs, called glands.

The manner wherein this ſecretion is effected, has been greatly enquired into in theſe laſt ages; though not with the greateſt ſucceſs.

The ancient phyſicians, indeed, contented themſelves to aſſert certain particular virtues, or faculties inherent in the ſeveral viſcera, whereby they were determined to ſeparate one liquor rather than another; without troubling themſelves much about the manner wherein this was done: but Dr. *Keil*, whoſe theory prevails moſt in *England*, accounts for ſecretion, from the joint conſideration of the different diameters of the veſſels, the different velocity of the blood, the different angles the ducts make with the arteries, and the different attraction of the different parts, under all theſe different circumſtances.

The theory of animal ſecretion, whereby the divers juices of the body are ſeparated from the common maſs of blood, by means of the glands, is one of the improvements in phyſic, for which we are indebted to *geometrical* reaſoning. The ſum of what our late writers on this ſubject have ſhewn, may be reduced to the following heads:

1. Different juices may be ſeparated from the common maſs of blood, by means of the different diameters of the orifices of the ſecretory ducts: for all particles, whoſe diameters are leſs than thoſe of the ducts, will paſs through them; ſo that any matter may be evacuated by any of the glands, provided the diameters of its particles be made leſſer than thoſe of the ſecretory duct, either by a comminution of the matter to be ſeparated, or by an enlargement of the ſeparating paſſage.

2. By the different angle which the ſecretory duct makes with the trunk of the artery: for all fluids preſs the ſides of the containing veſſels in a direction perpendicular to its ſides; which is evident in the pulſation of the arteries,

ries, it being to that preſſure that the pulſation is wholly owing. It is likewiſe evident, that the blood is urged forward by the force of the heart; ſo that the motion of ſecretion is compounded of both theſe motions. Now, the lateral preſſure is greater, when the direct velocity is ſo; but yet not in proportion to ſuch velocity: for the lateral preſſure is conſiderable, even when the fluid is at reſt; being then in proportion to the ſpecific gravity of the fluid: and in a fluid like the blood in the arteries, which is thrown in a right direction, or a direction parallel to the axis of the veſſel, the lateral preſſure will be in a proportion compounded of both: from whence it will follow, that, if two particles of equal diameters, but of unequal ſpecific gravities, arrive, with the ſame velocity, at an orifice capable of admitting them, yet they will not both enter in and paſs, becauſe their motion of direction will be different; ſo that the diverſity of the angles which the ducts make with the trunk of the artery, is altogether neceſſary to account for all the poſſible diver-

ſities of ſecerned fluids, even ſuppoſing their diameters and figures to be the ſame.

3. By the different velocities with which the blood arrives at the orifices of the ſecretory ducts: for, ſince the ſecretions are made in a fluid form, no poſſible reaſons can be aſſigned, why ſome animals have a ſoft, looſe texture of the ſolid parts, and why one part of the body is of an eaſily ſeparated texture, and others of a firmer; but this different velocity of the blood at the orifices of the ſecretory ducts, whereby the particles ſecerned for nouriſhment, and acretion, are drove or impacted into the *vacuola* that receive them, with a greater or leſſer force; it being difficult to imagine that ſuch a diverſity in texture can altogether proceed from the different ſolidities and contacts of the conſtituent parts.

In this theory of Dr. *Keil*, there is, indeed, ſomething arbitrary and conjectural: beſides, the reaſoning is carried ſuch a length, that, in a thing, the principles whereof are ſo obſcure, the parts or organs ſo imperfectly known, and the whole proceſs carried on out of

of ſight, the mind can ſcarce ſafely acquieſce in it.

M. *Winſlow*, of the Royal Academy of Sciences at *Paris*, ſeems to have taken a better courſe for the diſcovery of this important action of ſecretion. He does not take up with conjectural principles, nor draw a plauſible ſcheme of reaſoning therefrom through the dark; but applies himſelf to experiment, and inveſtigates, in Nature herſelf, and the ſtructure of the parts, the manner ſecretion is performed in.

From a ſtrict examination of the ſeveral kinds of glands, both in men and other animals, he finds, with ſome other *anatomiſts*, that the glands are only bundles, or plexus's of veſſels; but the veſſels peculiar to the gland, and which conſtitute the principal thereof, M. *Winſlow* firſt diſcovered to be tubes, furniſhed on the inſide with a kind of down, or *lanugo*, or rather a very fine ſpongeous *tiſſue*, which fills the whole cavity of thoſe veſſels like a pith, or marrow. This he finds in all the glands of all animals. In different glands, it appears of different colours,

lours; and this different colour is even found in the different glands of *fœtus's* themſelves.

The gland, then, is, or at leaſt its main part is, a compound of theſe downy or ſpongeous veſſels, which, from their office, we will call ſecretory veſſels, or ducts, and which frequently do, almoſt of themſelves, form what we call a gland, or glandulous body: though, beſide theſe veſſels, we uſually remark four other kinds, viz. arteries, veins, excretory ducts, and nerves. The ſecretory ducts we diſtinguiſh from the excretory ones; in that the former, by the peculiar texture of their down, ſerve to ſeparate a particular liquor; and that the latter only ſerve to receive the liquor thus ſecreted, and to carry it to the place it is deſtined for.

For the manner wherein the glands act, in ſeparating the ſeveral liquors from the body, M. *Winſlow* lays it down thus:—It is a thing well known by phyſicians and chemiſts, that a piece of brown paper, which is only an aſſemblage of ſmall fibres impacted cloſe to each other, having once imbibed oil or water, will never let any other liquor paſs through it,

it, but of the ſame kind with what it is impregnated withal. All others it ſtops. And the like is obſerved of a wick of *cotton*, or other matter, which having firſt imbibed its fill of oil or water, and being then dipped at one end, in a veſſel full of oil and water together; the wick that had imbibed the oil, will only raiſe and diſtil oil, and that with water, only water. Now, in the ſecretory ducts of the glands, we find a parallel ſtructure; an aſſemblage or plexus of fine threads, or filaments, bound cloſe together, much as in brown paper, or a cotton wick; only differently diſpoſed. This plexus, then, having once imbibed a certain juice, will not let paſs any of the liquors which arrive at the orifices of theſe ducts, but that which it had firſt imbibed.—The cauſe of this phenomenon is, doubtleſs, to be referred to the great principle of attraction, which is found ſtronger between the homogeneous, than the heterogeneous parts of the ſame fluid.

As the blood, then, is not a *homogeneous* liquor, but a compound of an infinity of different parts or *molecules*, ſome oily, others mucilaginous,

mucilaginous, aqueous, ſaline, ſubtle, groſs, &c. in its motion along the arteries of the gland, it becomes divided into all the little ramifications thereof; by which means its velocity is exceedingly abated, and its *molecules* are obliged to go off one by one, through the narrow paſſage of the artery into the vein, and of conſequence to paſs over the orifices of the ſecretory ducts of the glands, whoſe down is already tinged with a juice of ſuch a nature. Such of the *molecules*, therefore, as are found of the ſame nature with the juice they meet withal at the entrance of the ſecretory duct, join themſelves to them, and enter the ducts, driven on by others that follow them. Thus they paſs, ſucceſſively, through the whole veſſel, and at length go out of it into the excretory duct; while the reſt, which are of a different kind, run over the orifice of the ſecretory veſſel, without ever mixing with the juice thereof, and thus arriving in the vein, they are carried back to the heart.

All that remains, is, to explain how theſe parts ſhould have firſt imbibed the particular juices

juices neceſſary for their reſpective ſecretions: how, for inſtance, the *bile* ſhould come to be ſeparated in the liver, for the firſt time, preferably to any other liquor? To this M. *Winſlow* anſwers, that, having obſerved the glands of the ſmalleſt fœtus to be coloured, much as in adults; it appears highly probable they had been imbued with the juices they were to fibrate, at the firſt formation of the animal; or at the ſame time when the ſolid parts of the fabric themſelves were framed.

The

The Blood.

THE *blood* appears to the naked eye, uniform and homogeneous. Its compoſition is diſcovered, by the *microſcope*, to be ſmall red globules ſwimming in an aqueous humour: the one fibrous, which coheres into a maſs; and the other thin and tranſparent, retaining its fluidity when cold. It conſiſts of phlegm, volatile ſalt, oil, and earth.

Its *origin* is in the chyle, which paſſing the lacteals is delivered into the *ſubclavian*; where, mixing with the *blood*, they proceed together to the right ventricle of the heart; and there, being yet more intimately mixed, they circulate together through the whole body: till, after ſeveral circulations and ſecretions, at the ſeveral ſtrainers of the body, they are aſſimilated, ſo as to make one uniform compound maſs, which appears to be nothing elſe but chyle altered by the artifice of Nature, and exalted into blood; there being no

no appearance of any thing extraneous mixed with the liquor circulating in the blood-veſſels, but chyle; excepting what had been before ſeparated from it for ſome particular purpoſes, which being once ſerved, it is returned to it again: unleſs, perhaps, it may receive ſome portion of air in the lungs.

From the principles, or conſtituent parts of the *blood*, variouſly combined, and diſtributed by its circulatory motion, it becomes ſuſceptible of various alterations and impreſſions; the principal whereof are, coagulation, and diſſolution. Theſe two contrary affections of the blood, Dr. *Drake* aſcribes to the oppoſite kinds of ſalts, acids, and volatile alcalies. For though, adds he, in a human body, no ſincere *acid* is found, nor could it, indeed, be, conſiſtent with life; yet it may, and does often, enter the blood, ſo compounded as to bridle the volatile, alkalious ſalt of the blood, and to hinder the due attenuation and mixture of the ſeveral parts; as is the caſe in a *diabetes*, and perhaps in a *chloroſis*, where the blood is thick and torpid: on the other hand, where the alkaline ſalts are too redundant, the

blood

blood is rendered too thin and fluid, ſo that the difference of its conſtituent parts is loſt.

Another affection frequent in the blood is, a too great abundance of oils, or oily particles; by means whereof the active parts of the blood are too much clogged, and thoſe parts which ſhould be ſecreted for peculiar uſes in the body, are detained; and perhaps the ſolids, through which it paſſes, too much lubricated, their tone vitiated, ſhrunk, relaxed, &c. whence that ſluggiſhneſs and inactivity of very fat people.

The contrary affection to this is, the defect of oil in the blood; which being, as it were, its balſam, lines, and preſerves the parts from being fretted and corroded by the ſalts, whoſe ſpicula or edges are, as it were, ſheathed in this ſoft, balſamic matter, and their attrition againſt the ſolid parts prevented. This ſtate of the blood is uſually attended with a general *atrophy*, and a fretting and corroſion of ſome particular parts; whence ſerous *defluxions*, *apoſtumations*, and *ulcers*, eſpecially in the lungs, whoſe tender veſiculous ſubſtance is more eaſily annoyed than any other, by the acrimony of the ſaline ſerum.

There

There are other affections of the blood, reſulting from an inordinate temperature and mixture, which regard the earthy parts; the conſequences of which are the *ſtone*, &c. and others that do not originally ſpring from any dyſcracy, or undue mixture of the *elements*, but from an alteration in its motion; whence ſupernatural fermentations are induced. The occaſions here may be various: ſometimes *fevers*, and other diſorders occaſioned by *ſurfeits*, *debauches*, *catching cold*, *violent exerciſe*, &c. whence *atonias*; at other times, ſome latent malignity of the air, and from hence *epidemical diſeaſes*.

The morbific exceſs, or defect of the blood's velocity, is as remarkable as that of its quantity; but this cannot be judged of from the natural ſtate of the pulſe in health, which is different in different conſtitutions. The ordinary number of pulſations in a minute is from 70 to 80, under a ſtate of waking and moderate heat; and from 80 to 96 during the time of ſleep.

The too great heat and viſcidity of the blood is one of the moſt generally pre-

vailing *morbific conſtitutions*, eſpecially in a country as ours, abounding with all the temptations to, and proviſions for eaſe and luxury. This ſtate of the blood is brought on generally by drinking, too freely, hot, ſpirituous, inflammable liquors, and feeding plentifully on things which contain a large proportion of *volatile oily ſalts*; as *fleſh meats half boiled* or *roaſted*, eaten in their *bloody gravy*; and all *hot*, *ſpicy*, and *high-ſeaſoned broths*, *ſauces*, and the like. The blood being by theſe over-heated and rarefied, the *ſerum* is, in conſequence, thickened into a ſort of *jelly*, by which means it is rendered unfit for motion, coheres too ſtrongly with the *craſſamentum*, and paſſes but ſlowly through the *lymphatics*, and *ſecretory glands*. In this ſtate the thicker and more viſcid parts of the ſerum, ſettling in the *lymphatics*, and *receptacles of the glands*, gradually obſtruct, and fill them up: from which obſtruction, and diminiſhed, or intercepted circulation of the animal fluids, the heat and viſcidity of the blood ſtill increaſes, till the vital flame, raiſed too high, produces a fever.

a fever. This ſtate of the blood, and its ſymptoms, is aggravated by a ſedentary life, or the want of due motion and exerciſe; for while the natural motion of the muſcular *fibrillæ* is either not at all, or but little promoted by voluntary action, the glands and their receptacles muſt be the ſooner ſtuffed up, and the circulation of the lymph, that powerful means by which Nature continually cools and dilutes the blood, ſooner be ſuſpended.

The blood is cooled, diluted, and attenuated by temperance, exerciſe, the uſe of water as beverage, and, otherwiſe, by deobſtruents, eſpecially *mercury*, in the gentler preparations of it, as *æthiops*, or *cinnabar*, given in moderate doſes, ſo as not ſenſibly to affect the ſtomach, or excite ſalivation for a long time.

As to the greater or leſs degree of fluidity, and viſcidity of the blood, it is manifeſt, that this humour may either have its parts too intimately divided and attenuated, or, on the contrary, there may be too cloſe a coheſion between its parts, ſo as to render the maſs too thick and viſcous. The firſt of

theſe ſtates diſpoſes the blood to a too quick, eaſy, and rapid motion, and ſometimes diſſolves and fuſes it to ſuch a degree, that the *globules* paſs, together with the *ſerum*, through the *glandular ſtrainers*, and occaſion *bloody ſecretions*, as in *malignant* and *peſtilential fevers*, *bloody ſweats*, and other *preternatural hæmorrhages*. The latter, or viſcid ſtate, renders the blood unapt for motion, and diſpoſes it to ſtick and lodge in the *capillaries*, and *lymphatics*.

The ſpecific gravity of the *blood*, or the various degrees of its rarefaction and condenſation, depend on the degrees of heat: as the natural heat either riſes too high, or ſinks too low, the blood will, of conſequence, be either too much rarefied, or too much condenſed. In the former caſe, when the blood is overheated and rarefied, the expanſive force of the *elementary fire*, and *air*, contained in the maſs, prevails over the *corpuſcular attraction*; and then, by the coagulating power of heat upon the *ſerum*, and its too intimate mixture and coheſion with the *craſſamentum*, the lymph, which ſhould form the ſecretions, cannot be ſeparated;

ſeparated, but the *ſerum* is, as it were, abſorbed in the *craſſamentum*; in conſequence of which the ſecretions muſt be diminiſhed, or quite ſuſpended, and a fever enſue, more or leſs inflammatory, according to the degrees of heat in the blood, and the conſequent ſuſpenſion, or interruption of the lymphatic ſecretions.

On the other hand, where the blood is immediately cooled and condenſed, the corpuſcular attraction prevailing over the expanſive force, the ſerum will be over-thinned and diluted, and conſequently ſeparated too faſt, and thrown off too plentifully on the glands and lymphatics; ſo that, if the urinary drains happen to be obſtructed, a ſurcharge of ſerum muſt enſue, and in conſequence of this a dropſy: and, in caſe the fluid parts of the urine paſs freely enough, and only the groſſer recrements, *ſalts*, and *ſabula*, be kept back, theſe, being thrown on the ſeveral organs, will produce the ſymptoms of the *ſcurvy*.

Thickneſs of the blood is alſo a preternatural concretion, following on a *plethora*, or *diminution of its motion*; from which, *ſtagnations*,

and other diſorders draw their riſe. This is either general, throughout the whole body; or ſpecial, confined to ſome particular part; as in *hypochondriac* and *hyſteric* caſes, where the blood, by reaſon of the ſlowneſs of its progreſſion, acquires a lentor in the region of the abdomen. To the ſame cauſe are alſo owing *polypuſes*, *apoplexies*, *pluriſies*, *infarctions of the viſcera*, *palpitations of the heart*, *ſuppreſſions of the menſes*, *&c.*

Solubility of the blood is that tendency in the *ſerum* and *craſſamentum*, by which they are diſpoſed to ſeparate and diſengage from each other, when the blood comes to cool and ſtand in a baſon. When blood is taken off, it muſt frequently ſtand a long time at reſt, and in a cold place, before its principles can diſunite, ſo as to effect a perfect ſeparation of the *ſerum* from the *craſſamentum*; and yet at laſt, when the ſeparation is made, there may be a ſufficient quantity of *ſerum*, and perhaps a greater proportion than ordinary: whereas, at other times, this ſeparation ſhall be quickly made, and the ſolution effected after a ſhort time of ſtanding in a warmer air. The principal

cipal reaſon of this difference ſeems to be, the different degrees of heat to which the blood is ſubject, the globules being much more rarefied and expanded at one time than at another: and, therefore, as the arterial blood, being hotter, is longer in effecting this ſeparation than the venal, ſo, in a high inflammatory fever, the venal requires a conſiderable time ſtanding in a cool place before it can throw off its ſerum; but, in a cold, condenſative ſtate of the blood, this ſeparation is procured almoſt preſently.

The preſcriptions of modern phyſicians are generally founded on ſuppoſition, that a great ſhare of diſeaſes depend chiefly on the *vitiated conſtitution of the maſs of blood*; and their cure on reſtoring the blood to its natural ſtate, to be done partly by *evacuants*, but more by *ſpecific alterants*, ſo adapted, as to furniſh certain *active corpuſcles proper to ferment, or excite an unuſual commotion or agitation in the blood, whereby it may be corrected, and enabled to expel, or ſurmount the cauſe of the diſeaſe.* But it muſt be obſerved, that, when the whole maſs of blood is to be altered, the courſe of phyſic muſt be continued a long time, by

reaſon the blood moves ſlower and ſlower the further it moves from a great artery; conſequently, it muſt be a long time before the whole maſs of blood can be mixt with the alterative medicine. Add, that the circulation of the blood through glands, which receive arteries immediately from any great veſſel, being very quick, they may carry off a great proportion of the medicine in a very little time; ſo that *it is not the taking great quantities, but a conſtant taking for a conſiderable time, that can alter the maſs of blood.*

Of

Of the Circulation of the Blood, and Animal Spirits.

THE *blood* is the grand principle, and great treaſure of life, by which all *animals* are ſupported. It is originated from *chyle* prepared by coction and digeſtion; and ſubtilized by circulation through the *arteries* and *veins*, till it becomes fit for *nutrition*.

From this prepared fluid, a fine ſubtile juice is ſeparated in the *brain*, and from thence carried by the *nerves* to all parts of the body, for the performance of all the *animal and vital functions*.

The *œconomy of Nature* ſhews, how theſe circulating fluids are paſſed through the *arteries*, *veins*, *nerves*, and their appendages, in order to execute theſe wonderful deſigns.

From the right *ventricle* of the heart, by the contraction of its fibres, the blood is forced through the *pulmonary artery* into the *lungs*, and diſtributed by its branches through the

the whole ſubſtance thereof, and admitted into the extremities of the *pulmonary vein*, called *arteria venoſa*; whence paſſing into four large veſſels, which unite together, it is brought to the *ſinus venoſus*, or trunk of the *pulmonary vein*, by the force of whoſe muſculous ſtructure it is driven into the left *ventricle* of the *heart*, which, therefore, is become relaxed, and ready to receive it: the *valvulæ mitrales* hindering its reflux into the pulmonary vein. From hence it is forced into the *aorta*, at whoſe orifice there are three *ſemilunar valves* to prevent its return, which diſtributes it all over the reſt of the body; from whence it is brought back again by the *cava* to the right ventricle of the *heart*. Thus is the *circulation of the blood effected.*

The great artery, after it leaves the heart, divides into two large trunks, called the *aſcending* and *deſcending*, or the upper and lower trunks.

The *aorta aſcendens* conveys the blood to the head, and the upper parts of the body; and it is ſubdivided into three branches: the firſt, the *right ſubclavian*; whence ariſe the *carotid*,

carotid, *vertebral*, *cervical*, *right axillary*, &c. The ſecond is the *left carotid*. The third, the left *ſubclavian*; whence ariſe the left *cervical*, *vertebral*, and *axillary*.

The *aorta deſcendens* carries the blood to the trunk, and the lower parts of the body. Out of this ariſe the *bronchial*, *intercoſtals*, *cæliac*, *phrenic*, *meſenteric*, *emulgent*, *ſpermatic*, *iliac*, *umbilical*, *epigaſtric*, *hypogaſtric*, *crural*, &c. *with their ſeveral ramifications*.

The arteries are ordinarily compoſed of three coats, or *membranes*. The firſt, or outermoſt, *nervous or tendinous*; being a thread of the fine *blood-veſſels*, *with nerves*, for nouriſhing the other coats. The ſecond, *muſcular*, and made up of *circular*, or rather *ſpiral fibres*; of which there are more, or fewer ſtrata, according to the bigneſs of the *artery*: theſe fibres have a ſtrong elaſticity, by which they contract themſelves with force, when the power, by which they have been ſtretched out, ceaſes. The third, and inmoſt coat, is a fine, denſe, tranſparent *membrane*, which keeps the blood within its channels; which, otherwiſe, upon the dilatation of an artery,

would

would eaſily ſeparate the *ſpiral fibres* from one another. As the arteries grow ſmaller, the coats grow thinner.

All the arteries are conical; that is, they begin with the trunk, and, growing leſs and leſs narrower, end in branches ſo minute, that they eſcape the ſight, unleſs aſſiſted with the help of *microſcopes*; by which, in the tails of *tadpoles*, and very ſmall *eels*, the extremities of the arteries ſeem, by the ſwift, uninterrupted courſe of the blood, to be inoſculated, or continued to the originations of the veins: though, by the tranſparency of thoſe veſſels, the actual continuation be not viſible.

The coats of the arteries are of a very denſe, cloſe contexture; by which means, the blood not being viſible through them, they generally appear white. Add, that the blood, proceeding from a greater capacity to a leſs, is thereby ſomewhat obſtructed in its paſſage; but, being forced on by the motion of the heart, it diſtends the coats, and thereby occaſions the *ſalient motion called the pulſe*. By this thickneſs, and whiteneſs of the arteries, with

with the pulſation obſerved therein, they are diſtinguiſhed from veins.

Now, after the ſame manner, as the arterial blood is perpetually carried into all parts of the body, furniſhed with thoſe veſſels; ſo we conceive a juice, prepared in the *cortex* of the *brain*, and *cerebellum*, conveyed thence every moment, through the nerves, to every part of the ſolid body.

The ſmallneſs of the veſſels in the *cortex*, as exhibited in *Ruyſch's* injections, which yet are only arterious, and therefore incredibly thicker than the laſt emiſſary derived thence, ſhews how ſlender theſe hollow nervous ſtamina muſt be: but the great bulk of the brain, compared with the exceeding ſmallneſs of each *fibrilla*, ſhews that their number muſt be greatly beyond the limits of all imagination.

And again, the great quantity of juice brought hither, and violently agitated, will occaſion a conſtant plenitude, openneſs, and action of theſe little canals.

But as freſh juice is every moment prepared, and the laſt is continually protruding the former;

former; as ſoon as it has done its laſt office, it ſeems to be driven out of the laſt *filaments* into the ſmalleſt *lymphatic venulæ*, both about the glands and elſewhere; thence into the *lymphatics* ſomewhat larger; and, again, from theſe to the common *lymphatic veſſels with the valves of veins*; and, at length, into the *veins of the heart*: and thus, like the other juices of the body, does it make its circuit round the body.

Upon the whole, if we conſider the great bulk of the *brain*, *cerebellum*, *medulla oblongata*, *and medulla ſpinalis*, with regard to the bulk of the reſt of the ſolids of the body; that the *brain* and *carina*, that is the *ſpinal marrow*, are the baſis of an *embryo*, whence, according to the great *Malpighi*, the other parts are afterwards formed; and, laſtly, that there is ſcarce any part of the body but what feels, or moves: it will appear very probable, that all the ſolid parts of the body are woven out of the *nervous fibres*, and conſiſt wholly of them; and that the *nervous juice*, which denotes a pure, ſubtile, volatile humour, better known by the name of *animal ſpirits*, is ſecreted

ſecreted from the *arterious blood* in the cortical part of the brain, collected in the *medulla oblongata*, and thence driven, by the force of the heart, into the cavities of the *nerves*, to be by them conveyed throughout the body, for the purpoſe of *ſenſation and animal motion*.

The exiſtence of the *animal ſpirits*, is, indeed, controverted by ſome; but the infinite uſe they are of in the *animal œconomy*, and the exceeding lame account we ſhould have of any of the *animal functions* without them, will ſtill keep the greateſt part of the world on their ſide. And, in effect, the learned *Boerhaave* has gone a good way toward a demonſtration of their reality.

The blood brought to the brain by the *carotids*, and *vertebral arteries*, he ſhews, *is wonderfully prepared, ſecreted, elaborated, and changed from its natural ſtate, before it arrives there; inſomuch as, contrary to the nature of the reſt, inſtead of cohering by fire, it immediately reſolves wholly into a thin vapour, without leaving any fæces behind. And this is thus exceedingly well fitted for the formation of ſo extraordinary a fluid.*

He

He ſhews further, that the animal ſpirits are not formed from the *cruor*, but from the *ſerum of the blood:* which *Malpighi's* hiſtory of the growth of a *fœtus*, in an incubated *egg*, ſhews to be diviſible into parts, or corpuſcles, inconceivably ſmaller than the *cruor*.

He adds, that the nature of this juice is ſuch, as that no *ſalts*, or *oils* in the body, can contribute any thing to it; and that, in all appearance, it is only a moſt ſubtile, pure water; which liquor is found to reſemble theſe ſpirits in its extraordinary miſcibility, ſolidity, ſoftneſs, ſimplicity, and want of elaſticity.

The ſame author ſhews further, from the magnitude of the *carotids*, and *vertebrals*, their ſtraight, uninterrupted courſe, and great quantity of blood they bring, the bulk of the *cortex*, &c. that there muſt be a very great quantity of this liquor; and that there is freſh prepared every moment of life; and that it is driven every moment, by the action of heat, &c. from the *brain* and *cerebel*, to all parts of the body furniſhed with *nerves*; which motion, he ſhews, from the exceeding fineneſs, crooked-

crookedneſs, &c. of the ramifications, muſt be very gentle, equable, and conſtant, one part continually driving before it another.

Upon the whole, it is no wonder that this fluid eſcapes the notice of our ſenſes; and that *no ligatures, wounds, punctures, injections,* or the like, make either it, or the apertures of the *nerves,* through which it flows, viſible: nor does it avail, what ſome, who allow the exiſtence of *animal ſpirits,* urge againſt there being any coherent juice, or liquor, viz. that we ſhould find it ooze out, and wet the adjacent parts, as we do in cutting a *lymphatic,* &c. or that, upon binding a *nerve,* the upper part would ſwell; that the agitation, which objects make on the filaments, would be deadened, &c. that it is impoſſible a liquor ſhould have two oppoſite motions at the ſame time; and that the velocity of the ſenſations, and rapidity of the motions of man, prove, that the *animal ſpirits* are rather an *aura,* or even light, than a liquor.

M. *Lewenhock* endeavoured, by his *microſcope,* to diſcover the ſtructure of the *nerves,* in the ſpinal marrow of an ox. He ſaw there,

with great delight, minute hollow veſſels of an inconcievable firmneſs, inveſted with their proper membrane, and running out in length parallel to one another, and making up their compoſition: and though ſome hundreds of theſe go to the formation of the leaſt nerve that can be examined, he not only obſerved the cavities of them, which he computed to be three times leſs than their diameters, but, in ſome, perceived the orifices, as plainly as the holes in a pricked paper are to be ſeen when looked at againſt the ſun. It requires, however, great dexterity and expedition, to make this examination with ſucceſs; for, after a thin ſlice of the ſpinal marrow is placed before the *microſcope*, in leſs than a minute's time it becomes dry, and the whole appearance vaniſhes.

Saliva.

Saliva.

THE *Saliva* is a thin, pellucid humour, ſeparated from the arterial blood by the glands about the mouth and fauces; and conveyed by proper ſalival ducts into the mouth, for ſeveral uſes.

It conſiſts of a great deal of water or *phlegm*, and a *volatile ſalt*; and ſome add a *ſulphureous ſpirit*.

According to *Boerhaave*, it is void both of taſte and ſmell; it does not harden by heat; it is more copious, fluid, ſharp, penetrating, and detergent, as a perſon has faſted longer; and it is ſeparated from the pure arterial blood.

The glands wherein the ſaliva is ſeparated from the blood, are the *parotides*, the *maxillary*, *ſublinguales*, *amygdalæ*, and the *palatinæ*.

The great uſe of the ſaliva, is in maſticating, and diluting the food, and making the firſt digeſtion thereof. The other uſes, are

to moiſten the tongue, to render its motion more quick and eaſy; to lubricate the throat and *æſophagus*, in order to facilitate deglutition; to prevent thirſt; and to aſſiſt in the ſenſation of taſtes, by diſſolving the ſalts.

Some imagine it to do the office of a *menſtruum*, by mixing the oily and aqueous parts of the food more intimately, diſſolving the ſaline parts, and procuring a fermentation in the ſtomach: but Dr. *Drake* will not allow it fit for that purpoſe. Were the *ſaliva*, ſays he, acrimonious enough for this, it would be impoſſible but it muſt offend the ſtomach; eſpecially conſidering the quantities of it that many ſwallow, even upon an empty ſtomach.

M. *Gaſtaldi*, in a theſis on the *ſaliva*, obſerves, that it takes its name from the ſalt it contains; which ſalt he will have to be partly a *volatile acid*, and partly *alkalious*. He adds, that it contains ſome *oleaginous* parts, and a little *earth*. By being compounded of ſo many different kinds of parts, it becomes a diſſolvent proper for all the different kinds of food whereof we live. Its natural and laudable ſtate, is to be a little more viſcid than common

common water, and much leſs ſo than milk. And it is preſerved in this ſtate by the application of the ſpirits, and of the particles of air which inſinuate into it.

According to all appearance, the *ſaliva* is derived from the blood of the arteries: part of the arterial blood brought to the ſalival glands, ſerves to feed them; another part is returned into the veins, and continues the circulation; and a third part, which is the ſerum, receiving a ſubacid quality from them, is there conveyed into *ſaliva*.

Some authors have imagined, that the nervous juice contributed to the compoſition of the ſaliva; and the rather, becauſe larger and more numerous twigs of nerves are communicated to theſe glands, than to moſt other parts, which have a more exquiſite feeling than theſe: but Dr. *Nuck* has refuted this opinion by ſeveral experiments.

Too great an excretion of ſaliva, *Boerhaave* obſerves, diſorders the firſt digeſtion; and hence cauſes thirſt, dryneſs, a black bile, and finally conſumption and atrophy. On the contrary, if no *ſaliva* be diſcharged into the

mouth, or if only leſs than ordinary, it ſpoils both the manducation of the food, and its taſte, ſwallowing, and digeſtion; and, withal, occaſions thirſt.

The neceſſity of this humour, to diſſolve aliment, appears from the contrivance of Nature; in making the ſalivary ducts, of animals which ruminate, extremely open: ſuch animals as ſwallow their aliment without chewing, want ſalivary glands.

The

The Bile, and Pancreatic Juice.

THE *Bile* is a yellow juice, ſeparated from the blood in the liver, collected in the *porus bilarius*, and *gall-bladder*, and thence diſcharged by the common duct into the *duodenum*.

It is of two kinds, *hepatic* and *cyſtic*.—The firſt, moſt properly called bile, is ſeparated immediately from the glands of the liver into the *porus bilarius*.—The ſecond, more properly called gall, is ſeparated likewiſe from the glands of the liver into the gall-bladder, by roots or ducts proper to itſelf.

The *cyſtic bile* is thicker, of a deeper yellow, and bitterer; is not evacuated continually, but only when its receptacle is replete; in which caſe the contraction of the irritated fibres propels it into the *duodenum*.—The *hepatic bile* is greener, thinner, more mild and pellucid, and is continually oozing out; being expelled by the ſole action of the neigh-

bouring parts. The *cyſtic bile* reſiſts acids, and, mixed with other fluids, gives them the like property: it abſterges like *ſoap*, and renders oils capable of mixing with water; it reſolves and attenuates *reſins*, *gums*, and other tenacious bodies, rendering them homogeneal to itſelf. It is neither alkalious nor acid, but ſeems a concretion of oil, ſalt, and ſpirits diluted with water.—By a chemical *analyſis*, Dr. *Drake* obſerves, it affords ſome *ſulphur*, or *oil*, ſome *volatile ſalt*, a good deal of *fixed ſalt* (in which particular it differs from all other animal liquors), and a moderate quantity of *caput mortuum*, or earth: the baſis is *phlegm*.

The principal uſe and effect of the bile is, by mixing with the chyle and the fæces, to attenuate, reſolve, abſterge, and ſtimulate the *fibræ motrices* of the inteſtines; as alſo to mix together things very different, to bruiſe and blunt thoſe that are ſharp and ſaline, or divide thoſe that are coagulated, to open the paſſages of the chyle, to excite appetite, to act the part of a ferment, and to aſſimilate crude things to things concocted.—Theſe effects the *cyſtic bile* has in a greater, the *hepatic* in a leſſer degree.

Dr.

Dr. *Quincy* thinks the principal uſe of both ſorts of bile is to ſheath, and blunt the acids of the chyle, entangling them with its *ſulphur*, ſo as to prevent their being ſufficiently diluted by the *pancreatic juice* to enter the lacteals: which ſeems confirmed by this, that, notwithſtanding the great quantity of acid ſalts in the aliment in the ſtomach, there are never any found in the chyle after it has paſſed the duodenum, and been impregnated with the bile continually oozing out of the *porus bilarius*.

Borelli aſſerts, that part of the bile diſcharged into the inteſtines re-enters the *meſeraic veins*, and, mixing with the blood of the *vena porta*, is again percolated through the liver; and *Boerhaave* ſeems of the ſame opinion:—on which footing the bile has its circulation, as well as the blood.

Some will have the cyſtic bile brought to its receptacle three different ways, and that it is even compoſed of three different kinds of bile, whence its different properties:—though Dr. *Boerhaave* takes thoſe properties rather to reſult from its ſtagnating in the gall-bladder; and,

and, with *Malpighi*, thinks the bitter part may probably become ſo in the glands between the coats of the gall-bladder, which are furniſhed from the cyſtic arteries, whence it proceeds bitter, and mixes with the reſt in the bladder.

The bile is a juice of great importance, with regard to the good or ill habitude of the animal. Dr. *Woodward* has traced its effects throughout the body very minutely, and makes no ſcruple to aſcribe moſt of the diſeaſes thereof to ſome diſorder of the *bile*. This he takes to be the chief ſpring of the animal machine, and, from this, accounts for moſt of the *phenomena* of a body, whether healthy or diſeaſed: and yet the ancients generally took it to be no more than an excrement, for which they could not find any uſe.

Many of the moderns, from a ſmall quantity of bile ſecerned, have been led into a miſtake, that this ſecretion is not the ſole end of ſo conſiderable a viſcus as the liver. Dr. *Keil* obſerves, that in a dog, whoſe common duct was near as big as that of a man, he gathered at the rate of about *two drams in an hour*;

hour; though, in a human body, there is reaſon to think the quantity ſecreted to be greater.

The *bile* is found in all animals: even *pigeons*, *&c.* which have no gall-bladder, yet have bile, their *liver* being found very bitter. Mr. *Tauvry* obſerves, that the bile becomes one of the principal cauſes of thirſt, by mixing with the *ſalival juice*.

Sometimes the bile from yellow becomes greeniſh, like *verdigreeſe*, and frequently pale, like the *yolk of eggs*, and that without any other apparent cauſe than a little motion, a convulſion, or a violent paſſion of the mind. This occaſions many and terrible diſeaſes, *as nauſeas, an abhorrence of food, anxiety, ſighing, cardialgias, wind, diarrhœas, dyſenteries, acute diſeaſes, and convulſions.*

Sometimes it becomes black, and takes the name of *choler*; in this caſe, it ſometimes taſtes like *a very ſharp vinegar*: ſometimes like putrefied blood, gnawing, burning, diſſolving, conſuming, occaſioning *inflammations, gangrenes, mortifications, violent pains, and terrible fermentations.*

Of

Of atrabilis, or black bile, *Boerhaave* diſtinguiſhes three kinds: 1ſt, the mildeſt, ariſing from the matter of the blood, put into too great a motion, which hence takes the name of aduſt: the 2d is an aggravation of the firſt, ariſing from the ſame cauſes, only heightened: the 3d is a corrupt, parched bile, which, if it aroſe from a greeniſh, or paliſh ſort, is ſtill worſe.

Too great an evacuation of the bile, either upwards or downwards, robs the chylefaction of its main inſtrument: hence it prevents digeſtion, ſecretion, excretion of the fæces; and produces *an acid temperature*, *coldneſs*, *weakneſs*, *paleneſs*, *ſwooning*, *&c.* If the bile, when prepared, be prevented its diſcharge into the inteſtines, it produces a jaundice.

For the manner in which the bile is ſecreted in the liver, there are various opinions:—ſome maintaining that the pores of the ſecretory glandules of the liver have a certain configuration and magnitude, to which the particles of the bile floating in the blood being juſt anſwerable, both in bulk and figure, are admitted in, and all the reſt excluded.—Others, not

not allowing any difference in the configuration, as knowing that the pores of all the veſſels are circular, and that particles of all kinds will be admitted, if ſmall enough, have recourſe to a ferment, which they ſuppoſe to reſide in the liver, by means whereof the particles of the blood, in their paſſage through the ſecretory ducts, aſſume the form of bile. Dr. *Keil* chuſes to account for the ſecretion of the bile, from the ſtrong attraction between the particles whereof it is compoſed; and others have recourſe to other *hypotheſes. But, after all that has been ſaid by antient and modern writers, there ſeems yet a doubt as to its true origin, and where it is generated.*

The bile is ſo acrid, that Nature has furniſhed the *pancreatic juice* to temper its bitterneſs.

This juice is an inſipid, liquid humour, ſeparated from the blood, and prepared in the *pancreas.* It is neither acid nor alkaline, but a little ſaline, and much reſembling the ſaliva, in its origin, veſſels, and properties.

It is carried by the *pancreatic duct* into the *duodenum*; to temper, and dilute the bile; to change

change its viſcidity, bitterneſs, and colour; that it may be eaſily united with the *chyle*, and become one perfect *homogeneous* liquor, of a fit conſiſtence to enter the mouths of the lacteals.

Fermentation

Fermentation and Putrefaction.

FERMENTATION in itſelf is a thing utterly unknown to us; and we can only become acquainted with it from its effects: we, therefore, include, in our definition, the ultimate difference it produces; by which it is diſtinguiſhed from every other operation in Nature.

Fermentation is an inteſtine motion, or commotion of the ſmall, inſenſible particles of a mixed body, ariſing without any apparent mechanical cauſe, and producing a conſiderable alteration therein: or, it is an eaſy, ſlow, gentle motion of the inteſtine particles of a body, ariſing, uſually, from the operation of ſome active matter, which rarefies, and ſubtilizes the ſofter, yielding particles thereof.

Fermentation differs from diſſolution, as the latter is only a reſult, or effect of the former: and from ebullition, and effervescence, in that the motion, which in the firſt is ſlow, in the two

two latter is violent; and that, in the firſt, the motion is reſtrained to the minute particles of the body, but, in the latter, it extends to large maſſes thereof. It is, indeed, one of the moſt obſcure proceſſes in all Nature: and, according to the beſt definition, a ferment is any matter, which, being mixed with a fermentable body, expedites the fermentation.

As for thoſe who pretend there are particular ferments reſiding in the human body, it lies upon them to ſhew that they really exiſt, and have the properties of actual ferments.

Putrefaction is the moſt ſubtile of all diſſolvents: it is a ſlow ſort of corruption, produced in natural bodies, generally, by the moiſture of the air, or ſome other ambient fluid, which, penetrating the pores, and being agitated therein, diſſolves, and ſets at liberty, *ſome of the moſt ſubtile parts*, particularly the *ſalts* and *oils*; and thus looſens, and diſlocates, and quite changes the texture and figure of the *compages*, even to a total ſolution of continuity.

How much the *air* contributes to *putrefaction*,

tion, is evident hence; that bodies buried deep under the earth, or in water, out of the reach of *air*, ſhall remain for ages entire; which yet, being expoſed to the open *air*, ſhall ſoon rot, and moulder away.

The perpetual *oſcillations* of ſo elaſtic a fluid as *air*, contained, or ſhut up in the pores of the body, may be conceived ſufficient to induce this alteration in its form and texture; yet ſhould it rather ſeem, that the water, or vapoury matter wherewith the *air* is impregnated, is the more immediate agent. Hence *Acoſta* obſerves, that, in *Peru*, and others alſo have obſerved the ſame in *Egypt*, where it very rarely rains, every thing will continue a long time uncorrupted; unleſs we ſhould rather aſcribe this effect to the abundance of *nitrous ſalt in the air of thoſe places*, which is known to reſiſt *putrefaction*.

In effect, all *putrefactions*, both of animal and vegetable bodies, are affirmed, by the learned *Boerhaave*, to be performed by means of water alone. Take, ſays he, a pound of freſh fleſh, and keep it in a heat like that of our body, and in a few days the *putrefac-*

tion will be compleated; but if you firſt drain out, or exhale all the watery part from the ſame, *in ſome chemical veſſel*, though the *ſalt* and *oil* remain, the fleſh will harden like a ſtone, and may be kept for ages without *putrefaction*: though, when thus hardened, water poured on it, or even the common *dew*, will ſoon ſet it a putrefying.

By ſuch means, bread, fleſh, or the like foods, may be preſerved for many ages; provided regard be had to the place. Hence it is, that, in dry countries, as *Egypt*, dead carcaſes never putrefy, but dry and harden uncorrupted; as we ſee alſo in the *mummies* found buried under the ſand.

Even *human blood*, which naturally is ſo prone to *putrefaction*, if you deprive it of its watery part, may be kept for fifty years; as we know that of *goats* has been, for ſo long a time, without corrupting: though, if you diſſolve it in water, and expoſe it to a gentle warmth, it ſtill putrefies immediately.

The fluids of the human body are much diſpoſed to *putrefaction*, and out of the body become highly putrid, even in cool *air*, and without

without any ſtirring or agitation; and our blood, and ſome of our juices, ſtagnating within the body, change to putrid matter.

The changes wrought in bodies by *putrefaction*, are no where more remarkable, than in the *putrefaction of vegetable ſubſtances*, which, by means of this change, are brought nearly into the condition and nature of *animal ſubſtances*.

To prove this, by an eaſy experiment: Take a large quantity of *cabbage-leaves*, and preſs them hard down with weights in an open tub, with holes bored in its ſide; ſet them in a warm place, and the leaves will ſoon conceive a heat in the middle; and at length the whole, or nearly the whole, will be converted into a *ſoft, pappy ſubſtance*. This ſubſtance diſtilled in a glaſs retort, yields the ſame kind of *volatile ſalt, and oil, as animal ſubſtances do*. Neither is it particular to this plant, but all equally do this; the *acid*, and the *alkaline*; the *ſweet*, and *bitter*; the *aſtringent*, and *emollient*. Hence we may learn how it is, that *Nature*, in our bodies, converts *vegetable* into *animal ſubſtances*: and it

is very remarkable, that not a grain of *fixed ſalt* can be procured from the *putrefied maſs*.

Putrefaction effectually disjoins, and ſeparates, all the component parts of putrefying bodies, except *ſea-ſalt*. In this powerful ſolution, the inteſtine action of the minute particles of bodies creates, collects, or is, by ſome way or other, the cauſe and means of heat; of which, *malignant* and *peſtilential fevers, with petechiæ, or purple ſpots*, are the moſt frequent conſequences.

Such a conſtitution of the air, as would naturally putrefy raw fleſh, muſt endanger by *a mortification*.

Of

Of the Paſſions of the Mind.

THE paſſions of the mind make one of the *non-naturals*; and are of the utmoſt conſequence, with reſpect to health and diſeaſe.

In conſequence of the ſeveral judgments we form concerning objects, as either good or evil; the organs of ſenſation and motion, that is, the *nervous fibres*, are variouſly impreſſed and ſtimulated: whence ariſe certain *ſenſations*, and certain *modifications* of motion; which, it is apparent, are *reciprocal*, and follow *mutually* from each other, whether the impreſſion be ſuppoſed firſt made on the *body*, or on the *mind*: that is, any ſtrong, violent motion, made on the *organs*, will excite a *painful ſenſation in the mind*; or any ſuch *painful ſenſation* firſt excited in the mind, from the bare conſideration of an object, will impreſs a violent motion on the *organs*. And, on the contrary, an *eaſy*, *placid undulation*, im-

preſſed originally by the actual impulſe of objects, will excite a *pleaſurable ſenſation in the mind*; or a pleaſurable ſenſation excited in the mind, from the mere contemplation on an object, will be followed with a like *eaſy, placed undulation of the organs.*

The *painful paſſions*, then, as well as *bodily pain*, impreſs the *nervous fibres* with a violent motion, which brings them alternately into forcible contractions, and dilatations; or ſtrengthens, and increaſes their *muſcular force, and action.* While, then, this pain, or uneaſineſs of deſire, annexed to the *paſſions*, and impreſſed on the *nerves*, is moderate, and reſtrained within the bounds of *Nature*, ſuch ſtimulating deſires have a good effect; as they ſtrengthen muſcular motion, keep up the *circulation of the blood*, promote the natural *ſecretions*, and excite a man to thoſe actions and exerciſes, wherein animal life, health, and vigour, conſiſt. But where the uneaſineſs annexed to the paſſion is too violent, ſuch a continual *ſtimulus* will gradually derive a too great proportion of blood to the ſtimulated organs, by which the veſſels will be over-

ſtretched

ſtretched and diſtended, their muſcular force will be gradually impaired, and the *equilibrium* of the blood and juices will be interrupted: and hence, from a mere painful ſenſation, will ariſe a complicated train of bodily illneſſes, and pains; in conſequence of the eſtabliſhed laws of the union and communication of mind and body.

Again, while we are wearing off the uneaſineſs of deſire annexed to any paſſion, we feel a ſenſible pleaſure or agreeable emotion; and the organs hereupon falling into eaſy, uniform, placid undulations, the too great current of the blood towards them is diverted, and the *equilibrium* is reſtored.

As ſoon as the uneaſineſs is all gone, the pleaſure ceaſes, and terminates in mere indolence, which diſpoſes the perſon to reſt and inaction; till freſh deſires returning, ſtimulating again to farther action, renew the ſame ſucceſſion, and interchangeable ſeries of pain and pleaſure. And this is the circle of animal life: as the ſtimulus of deſire throws off the indolence of reſt, and excites to action; ſo the gratification moderates the pain of deſire,

creates a pleaſure at firſt, and then terminates in the former indolence and inaction; till freſh deſires returning, ſtimulate to farther action, and continue the ſame round.

Dr. *Cheyne* divides the paſſions into *acute* and *chronical*; after the ſame manner, and for the ſame reaſon, as diſeaſes are ſo divided.

The acute paſſions, whether pleaſurable or painful, he obſerves, have much the ſame effect, and operate after the ſame manner as acute diſeaſes do. They produce a briſk circulation of the fluids, and conſtringe the ſolids for ſome ſhort time. Thus, ſudden guſts of joy, or of grief, ſtimulate the *nervous fibres*, and the coats of the *animal tubes*, and thereby give a greater celerity to their included fluids; and the functions of the heart and lungs, being involuntary, they have their more neceſſary effects in them. Thus both ſudden joy and grief make us breathe ſhort and quick, and render the pulſe ſmall and frequent: though retaining our breath ſome time, to reflect more intenſely on a painful object, forces at length a ſtrong expiration, which becomes a *ſigh*. Thus a ſudden painful idea, making a quick

a quick circulation, and thereby throwing a great quantity of blood upward, makes it appear in the ſuperficial veſſels of the face, neck, and breaſt, and ſo produces a *bluſh*. The ſame principles will account for the effects of *fear*, and *anger*, which makes us change colour, and look red, or pale, as the blood is accelerated, or retarded in its courſe. Sudden and great fears do ſo convulſe the *nervous ſyſtem*, that they ſometimes alter the poſition of the parts: thus the hair will ſtand an end in a fright; and the nerves be rendered ſo ſtiff and rigid as to ſtop at once the *animal functions*; whence fainting, and, ſometimes, even death.

Chronical paſſions waſte the nervous ſyſtem gradually. Thoſe *nerves* employed in conſidering, brooding over, and fixing ſuch a ſet of ideas in the imagination, muſt be at length worn and impaired; and the reſt, by diſuſe, rendered reſty and unactive; lifeleſs, and deſtitute of a ſufficient flux of warm blood, and due nouriſhment. Thus do long grief, dark melancholy, hopeleſs love, over-weening pride, &c. impair the habit; and ſometimes,

when long indulged, terminate in *madneſs*. The reaſon is, that a conſtant habit of fixing one thing in the imagination, begets a ready diſpoſition in the nerves to produce again the ſame image, till the thought of it becomes ſpontaneous, and natural; like breathing, or the motion of the heart.

Dr. *Morgan* ſeems to have gone beyond any body in explaining the orign, and effects of the paſſions. From a courſe of actual obſervations of the ſeveral *phenomena* in the body, which attend the ſeveral paſſions, viz. the ſtate of the pulſe, reſpiration, warmth, digeſtion, &c. that author draws the following concluſions:

1. That the grateful and pleaſurable paſſions raiſe the vital tide, ſtrengthen and quicken the pulſe, diffuſe the natural heat, and take off any antecedent ſtimulus, or preſſure upon the *abdomen*, and inferior organs: and, on the contrary, the painful paſſions ſink and depreſs the blood, weaken the pulſe, recal and concenter the natural heat, and fix a ſtimulus, or compreſſion, on the inferior organs.

2. All

2. All the paſſions impreſs their characteriſtic ſenſations or modifications of *pleaſure* and *pain*, eſpecially upon the œſophagus, and upper orifice of the ſtomach.

3. That they impreſs the different modifications, of pleaſure and pain, on the muſcles of the larynx, and thus diſcover themſelves by the different modulation and tone of the voice.

And hence he infers, that the nerves of the eighth conjugation, or *par vagum*, are the principal inſtruments of the paſſions; by means whereof they are variouſly impreſſed, modified, and organized. Theſe, therefore, which are diſperſed to all parts of the breaſt, and abdomen, particularly to the heart, lungs, ſtomach, liver, œſophagus, diaphragm, inteſtines, the organs of generation, &c. he conſiders as *pathetics* of the firſt order: the *intercoſtals*, which accompany all the diviſions of the *par vagum*, he calls *pathetics* of the ſecond order: the nerves which ſerve the muſcles employed in reſpiration, and have the neareſt communication with thoſe of the *par vagum*, by means of the *intercoſtals*, he calls

pathetics of the third order: and the nerves, which immediately diſpenſe ſenſe and motion to the ſeveral parts of the head, and have a remoter communication with the *par vagum*, *pathetics* of the fourth order.

It follows, that the *pathetics* of the firſt order will be firſt affected in the paſſions, and that with the ſmalleſt degree of impreſſed motion; with which the parts, communicating with the ſecond order, are affected almoſt at the ſame time; and then the nerves employed in the muſcles of reſpiration, become likewiſe affected; and, laſtly, the organs of ſenſe and motion in the brain itſelf, by which ſenſation and imagination are performed, and put into a forcible emotion, whereby the ordinary operations of ſenſe, judgment, &c. are much diſturbed.

The gradual riſe, and progreſs of the paſſions, is confirmed by fact, obſervation, and experience; but how they are generated, and by what ſteps they make theſe advances, it requires ſome farther conſideration.

It may be obſerved, then, that the quantity of motion impreſſed on the pathetic nerves in any

any paſſion, is always proportionable to the ſtrength of the deſire; but ſuch impreſſed motion is not always uniform, or equally diffuſed through the whole pathetic ſyſtem: for, as the largeſt, and moſt numerous branches, of the pathetic nerves, are ſpent on thoſe parts which derive their blood from the deſcending trunk of the *aorta*, viz. the ſtomach, ſpleen, kidneys, &c. upon any motion, too forcibly impreſſed, or too long continued, theſe organs are the firſt, and greateſt ſufferers; whence, the blood flowing impetuouſly, and irregularly, to the parts thus ſtimulated, they become over-ſtretched; and hence ariſes a ſenſe of pain, weight, and oppreſſion. By this means, alſo, the head, and ſuperior parts, being deprived of their due ſhare of blood, the pulſe muſt ſink, the natural heat diminiſh, and retire, and a ſenſe of cold, and conſtriction, be felt about the œſophagus, where the branches of the par vagum are very numerous: and hence the patient will be excited to ſigh, groan, moan, cry out, and complain; and will diſcover it in the tone of the voice, and modulation of the muſcles of the larynx, the characteriſtics of the prevailing paſſion.

Such

Such is the ſtate of Nature under the painful paſſions, where the ſtrong deſire of good is attended with an appearance of difficulty, or impoſſibility. Where the ſame deſire is attended with a ſeeming probability of obtaining, or effecting it; this appearance, by moderating the intenſeneſs of the pain of the deſire, and taking off the violent action of the pathetic nerves on the inferior organs, puts the pathetic ſyſtem in an eaſy, natural, uniform undulation; by which the *equilibrium* of the blood being reſtored, the pleaſurable paſſions of love, joy, hope, &c. will be raiſed: and in this caſe the pulſe will riſe, and the natural heat will be diffuſed; and, by the action of the pathetic nerves on their proper organs, the ſeveral ſymptoms will be produced, which diſcover their placid emotions. Where the deſire is very keen and, intenſe, we ſee what a prodigious force it will impreſs on the nerves, by the actions of *madmen*, and men in a fright. In this caſe, the ſtimulus of deſire being exceeding ſtrong, and the impreſſed motion univerſal, the pathetic nerves of the fourth, or laſt order, come to be af-

affected; that is, the organs of ſenſation, and imagination, in the brain, are brought into ſuch violent vibrations, as to diſturb the operations of reaſon.

From this violent perturbation of the pathetic nerves in the brain, *mad-men* have their imagination as ſtrong and vivid as ſenſation itſelf.

Hence, alſo, we may obſerve the heights, or extremes of the two contrary, painful and pleaſurable, paſſions: the one riſing at length into a *mania*, or raving madneſs; and the other ſinking into an *hypochondriacal melancholy*. The principal ſeat of one is the brain; and the other, the viſcera of the abdomen, eſpecially the ſpleen, and meſentery. The one inflames and over-heats, the other chills and freezes, the imagination: the one hangs over the underſtanding, like a glaring, dazzling light, which animates, and leads us on with zeal and vehemence; the other, like a thick, black, and diſmal cloud, that ſinks all the powers of Nature into the depths of *miſery* and *deſpair*.

Hæmorrhages

Hæmorrhages.

NATURAL hæmorrhages comprehend bleeding at the noſe, ſpitting of blood, the fluxes of the hæmorrhoids, and menſes, the lochia in lying-in women, vomiting of blood, and voiding bloody urine.

An hæmorrhage by the bowels is moſt uſually called a dyſentery.

A plethora, violent commotions of the body, hot foods and liquors, heat of the weather, and ſudden cooling of the body after violent heat and paſſion, are among the principal cauſes.

Hypochondriac, ſcorbutic, and chachectic perſons, are liable to various, and immoderate hæmorrhages.

The cure of hæmorrhages, ariſing from a plethora, is by evacuants, and particularly phlebotomy, to cauſe a revulſion: but when a thin acrimonious blood increaſes the velocity, coolers and agglutinants are the proper remedies.

The

The principal ſimple remedies in hæmorrhages, are the *ſpirit*, or *oil of vitriol*, *chalcanthum rubefied*, *colophony pulverized*, *oil of turpentine*, *decoction of catechu*, *and cortex Peruvianus*.

Revulſion.

REVULSION is the turning a flux of humours from one part of the body to another.

In very dangerous wounds, where the loſs of blood is great, and the ſtopping of it ſpeedily enough is impracticable, it is uſual to open a vein in ſome remote part, to cauſe a revulſion; that is, to turn the courſe of the blood, from the former part, to that where the aperture is made.

Derivation differs from revulſion only in the meaſure of the diſtance, and the force of the medicines uſed: if we draw it to ſome very remote, or contrary part, we call it Revulſion; if only to ſome neighbouring place, and by gentle means, we call it Derivation.

In violent, hot, raging, eſtuating fevers, when the acrid, fervent, boiling blood, gets ahead, and tumultuouſly breaks in upon the brain, and accends the ſpirits, and drives them into

into diſtraction, and fury; thereby exciting in the head, ardor, hiſſing, humming, crackling, unexplicable conturbation, frightful fancies, terror, frenzy, delirium, and watching: a pedilave, in ſuch caſe, of warm water, uſeth to bring great relief; foraſmuch as it inclines the motion of the blood downwards, into the inferior parts; and at the ſame time does not enkindle or flutter it e'er the more, but rather, on the contrary, refrigerates and quiets it.

There are two, perfectly diſtinct, great provincial circles of the blood: one by the aſcending artery, through the parts ſituate above the heart; and the other by the deſcending artery, through the parts below. By how much the more rapidly, therefore, the blood ruſheth through the inferior province, by ſo much the more placidly, and with leſs current, of neceſſity, will it flow through the oppoſite ſuperior province; and ſo on the contrary. And upon this foundation is grounded the rational doctrine of univerſal revulſion.

Herm. Vander Heyden ſaith, in violent

bleeding at the noſe, when the blood hath iſſued forth in the manner of a torrent, the ſpeedieſt, and moſt certain remedy (when all other means have failed) hath been, to put the patient's feet in warm water, as far as to the very knees; as it happened to one that was at the very point of death, whence, by the trial of this experiment, he was happily recovered, when both his legs and thighs, for want of blood, had now grown cold: and no marvel, for, his blood flying up to his head, he had loſt no leſs than 18 pints of it at the noſe, as by moſt exact obſervation was found. And *Vigo* adviſes the ſame in a *quinſey*.

Inflammation.

THE immediate cauſe of an Inflammation is an exceſs, or overflowing of blood, in the part affected: other more remote cauſes, may be the denſity, and coagulation of the blood; or the relaxation and contuſion of the fibres. It is attended with a preternatural heat, and redneſs, tumor, tenſion, and other fluctuous complaints, ariſing from an accelerated progreſſive motion of the blood, and a general obſtruction and diminution of the glandular ſecretions: i. e. a part of the lymph, or ſerum of the blood, which ought to be continually drained off by the glands, is, during this preternatural heat, or fever, ſo retained in, and cloſely united to the maſs, that it circulates together with it in the veins and arteries, till concoction, fluctuation, ſuppuration, or other natural excretion, ſhall critically, effectually, and ſalutarily, exterminate the cauſe of this malady.

Boerhaave obſerves that a fever is an inſeparable companion of an inflammation; and ſummarily comprehends the cure, in correcting the ſharp, irritating, febrile matter; diſſolving the lentor, and mitigating the ſymptoms.

Inflammation, and fever, are therefore conſidered as terms ſynonymous, whether the body be partially, or totally affected; and to what cauſes, or how many it is aſſignable, and whether the criſis be formed externally or internally, by the hand of the ſurgeon or the phyſician, it makes no difference.

A late author is of opinion, that the *ophthalmia*, *angina*, *phrenitis*, *peripneumonia*, *pleuritis*, *hepatitis*, *nephritis*, and *rheumatiſmus*, have all the ſame characteriſtic, and differ in nothing but the part affected: ſo that, if one has a right knowledge of an inflammation on an external part, its progreſs, and proper remedies, and at the ſame time is thoroughly acquainted with anatomy, and the animal œconomy, he cannot be at a loſs to diſtinguiſh, and treat any of the diſeaſes belonging to this claſs.

The Lochia.

THE *Lochia* is a flux of blood and humours from the *uterus*, after the excluſion of the *fætus*; drained off from that organ, as from a wet compreſſed ſpunge, by a contraction of its fibres.

At firſt, the flux is almoſt pure blood; afterwards it is more diluted, appears more yellow, becomes pale and watery, diminiſhes, and, at length, totally ceaſes.

This is the ſtate of the *lochia*, according to Nature, after a perfect delivery; in which there is no need of a phyſician's aid.

But, in plethoric habits, and perſons ſubject to violent paſſions, ſuch as are uſed to drink wine, or other ſtrong liquors, eat high-ſeaſoned foods, have omitted cuſtomary bleedings during geſtation, or have taken violent medicines to promote delivery, or where part of the *ſecundines* are retained, it is very different: for, in all theſe caſes, there is uſually a

profluent diſcharge of the *lochia*, which requires the beſt judgment, and the ſtricteſt attention.

In order to prevent an immoderate flux of the *lochia*, frequent bleeding, during the time of pregnancy, is found uſeful: and, if neceſſary, it may be done even juſt before the delivery. Proper ligatures for the belly, after the excluſion of the *fœtus*, are alſo of great ſervice in this view; and the keeping perfectly quiet, and avoiding much talking, are greatly conducive thereto.

Women in child-bed are to be conſidered as wounded perſons, in whom fevers are very eaſily brought on; and, therefore, every thing that makes any commotion of the blood is to be carefully avoided.

Medicines, which have the power to quiet the violent commotions of the blood, are to be often repeated; ſuch as *nitre*, *the alkaline abſorbents*, *calx of antimony*, &c. *Tinct. Thebaic.* may be given occaſionally, *orange-whey*, &c.

Gentle perſpiration, by theſe means, will be obtained, and kept up nine or ten days; in which

which time the patient is generally ſuppoſed to be out of danger.

Fluxes of the *lochia* attending *abortives*, are uſually more dangerous than thoſe that follow natural births. They are to be treated, however, when immoderate, by the ſame means as are uſed in violent fluxes of the menſes.

When the breaſts are painful, at the coming of the milk, the *lochia* commonly ſtop; but flow again, as ſoon as the pain ceaſes. In this caſe the *thebaic tincture*, and that of *ſaffron*, mixt, has very often proved a ſucceſsful remedy.

There is no kind of *hæmorrhage*, in which a ſuppreſſion is attended with ſo great, or ſuch imminent danger, as this of the *lochia*. The natural ſuppreſſions are, uſually, either from an over-quantity of blood, with a ſpiſſitude of it, or from a turgeſcence and violent emotion of it. The perſons ſubject to theſe ſuppreſſions are principally thoſe of a plethoric habit, and whoſe veins are ſmall; and ſuch as are of a deſponding diſpoſition, and eaſily ſubject to fear, ſorrow, and the like paſſions.

The

The following medicines greatly conduce to the promoting the *lochia*, viz. all preparations of *myrrh*, *ſaffron*, *borax*, *caſtor*, *zedoary-root*, *calx of antimony*, *opium*, *ariſtolochia*, and all *emmenagogues*.

Menſes.

Menſes.

THE Menſes make one of the moſt curious, and difficult phenomena, in the whole human body; for the explanation whereof many hypotheſes have been framed, though the matter is yet ſcarcely aſcertained.

It is generally agreed by all, that the neceſſity women are under for ſome extraordinary ſupply to compenſate the expence, and ſupport them during the time of *geſtation*, was the final reaſon why this redundance at other times was given them. But this is all they agree in. Some, not content with this occaſion alone, will have the *menſtruous blood* offend in quality more than quantity; when they argue from the pain it gives many women in the evacuation. They add alſo, that its *malignity* is ſo great, that it excoriates the parts of men by mere contact; that the *breath* of a *menſtruous woman* will give a permanent ſtain to *ivory*, or a *looking-glaſs*; that a little of the blood,

blood, dropped on any vegetable, blaſts, or renders it ſterile; that, if a pregnant woman be defiled with the menſes of another woman, ſhe miſcarries; that, if a dog taſtes them, he runs mad, and grows epileptic: all which, with many more fables of the ſame kind, though related by great authors, Dr. *Drake* rejects, as too ridiculous to need a refutation.

Others aſcribe this effect to an imaginary dominion of the *moon* over the bodies of women. This was formerly the prevailing opinion; though the ſmalleſt reflection would have ſhewn the weakneſs of it: for, had this purgation been owing to the influence of the *moon*, all women, of the ſame age and temperament, would have found it at the ſame periods and revolutions of the *moon*, i. e. at the ſame time; which all experience ſhews to be falſe.

There are two other opinions, which carry with them great probability, and are argued with a great deal of ſtrength and reaſon: in both which, the quality of the blood is allowed to be innocent; but they ſtill differ about the reaſon of its iſſue. The former is that

that of Dr. *Bohn* and Dr. *Freind*, who maintain this flux to be the reſult of a *plethora*, or plenitude; and to be evacuated only for relief againſt the quantity.

Dr. *Freind*, who has maintained the cauſe of a *plethora* with the greateſt ſtrength and clearneſs, ſuppoſes, that this *plethora* ariſes from a coacervation in the blood-veſſels of a ſuperfluity of aliment, which, he thinks, remains over and above what is expended in the ordinary ways; and that women have this *plethora*, and not men, becauſe their bodies are more humid, and their veſſels, eſpecially the extremities of them, more tender, and their manner of living generally more inactive, than that of men; and that theſe things concurring, are the occaſion that women do not perſpire ſufficiently to carry off the ſuperfluous alimentary parts, till they be accumulated to ſuch quantity as to diſtend the veſſels, and force their way through the *capillary arteries* of the *uterus*. It is ſuppoſed to happen to women, more than the females of other ſpecies, which have the ſame parts, becauſe of the erect poſture of the former, and the *va-*

gina,

gina, and other canals, being perpendicular to the *horizon*; ſo that the preſſure of the blood is directed towards their orifices: whereas, in brutes, they are parallel to the *horizon*, and the preſſure wholly is on the ſides of thoſe veſſels. This diſcharge, he thinks, happens in this part rather than in any other, as being more favoured by the ſtructure of the veſſels; the arteries being very numerous, and the veins ſinuous and winding, and therefore more apt to retard the impetus of the blood; and conſequently, in a plethoric caſe, to occaſion the rupture of the extremities of the veſſels, which may laſt, till, by a ſufficient diſcharge, the veſſels are eaſed of their over-load.

This is the ſubſtance of Dr. *Freind*'s theory; from whence he very mechanically, and very philoſophically, accounts for the ſymptoms.

To this argument, why women have menſes rather than men, we may add, from *Boerhaave*, that, in the former, the *os ſacrum* is wider, and ſtands farther out, and the *os coccygis* farther in; the *oſſa innominata* wider, and

and farther apart, and the loweſt of them, as well as the lower eminences of the *os pubis*, farther outwards than in the latter. Hence, in women, the latitude or expanſion about theſe bones, and the capacity of the *pelvis*, is vaſtly great in proportion to thoſe of men; and yet, in a woman not pregnant, there is not much to fill this expanſe. *Again*, the fore-ſide of the thorax is ſmoother in women than in men, and the *blood-veſſels*, *lymphatics*, *adipoſe*, and *nervous veſſels*, *membranes*, and *fibres*, are much laxer in women than in men: whence all their cavities, cells, veſſels, &c. are more eaſily repleniſhed, and the humours aggregated in them; beſides that they are found to perſpire leſs than men, and to arrive much ſooner at their maturity. To which he adds the conſideration of the ſoft, pulpous texture of the *uterus*, and the vaſt number of veins and arteries it is filled withal.

Hence, an healthy maid, being arrived at her growth, begins to prepare more nutriment than is required for the ſupport of the body; which, as there is not to be any farther accretion, muſt, of neceſſity, fill the veſſels,

veſſels, and eſpecially thoſe of the uterus and breaſts, they being the leaſt compreſſed. Theſe will be dilated more than the others; whence the lateral *vaſcules* evacuating their humour into the cavity of the *uterus*, it will be filled, and extended. Hence a pain, heat, and heavineſs, will be felt about the *loins*, *pubes*, &c. the veſſels of the *uterus* at the ſame time will be ſo dilated, as to emit blood into the cavity of the *uterus*, and its mouth will be lubricated and looſened, and blood iſſue out. As the quantity of blood is diminiſhed, the veſſels will be leſs preſſed, and will contract themſelves again cloſer, ſo as again to retain the blood, and let paſs the groſſer part of the ſerum; till at length only the uſual ſerum paſſes. Again, there are more humours prepared, which are more eaſily lodged in veſſels once dilated; and hence the menſes go and return at various periods in various perſons.

This *hypotheſis*, however plauſible, is oppoſed by Dr. *Drake*, who maintains, that there is no ſuch repletion, or, at leaſt, that it is not neceſſary to menſtruation; arguing, that,

that, if the menſes were owing to a *plethora* ſo accumulated, the ſymptoms would ariſe gradually, and the heavineſs, ſtiffneſs, and inactivity, neceſſary ſymptoms of a *plethora*, would be felt before the period were compleated, and women would begin to be heavy and indiſpoſed ſoon after evacuation, and the *ſymptoms* would increaſe daily; *which is contrary to all experience:* many women, who have them regularly and eaſily, having no warning, nor any other rule to prevent an indecent ſurprize, than the meaſure of the time; in which, ſome that have ſlipped, have been put to confuſion and ſhifts, no ways conſiſtent with the notice a plethoric body would give. He adds, that, even in thoſe who are difficultly purged this way, the ſymptoms, though very vexatious and tedious, do not make ſuch regular approaches, as a gradual accumulation neceſſarily requires. If we conſider what violent ſymptoms come on in an hour, we ſhall be extremely puzzled to find the mighty acceſſion of matter, which ſhould, in an hour or a day's time, make ſuch great alterations. According to the *hy-*

potheſis, the laſt hour contributes no more than the firſt, and, of conſequence, the alteration ſhould not be greater in the one than the other; ſetting aſide the bare eruption.

This is the ſubſtance of what is argued againſt Dr. *Freind*'s theory; which, it muſt be owned, notwithſtanding theſe objections, is ſtill the moſt rational and conſiſtent that has yet been advanced.

Thoſe who oppoſe it, give into the doctrine of *fermentation*, and maintain the evacuation of blood in thoſe parts, to be the effect of an *effervescence*, or *ebullition* of the *blood*. This opinion has been maintained by many, particularly Dr. *Charleton*, *Bale*, *De Graaf*, and *Drake*; the two firſt of whom ſuppoſe a ferment peculiar to the women, which produces this flux, and affects that part only, or at leaſt principally. Dr. *Graaf*, leſs particular in his notion, only ſuppoſes an effervescence of the blood raiſed by ſome ferment, without aſſigning how it acts, or what it is. The ſudden turgeſcence of the blood occaſioned them all to think, that it aroſe from ſomething till then extraneous to the blood, and

led them to the parts principally affected to ſeek for an *imaginary ferment*, which no anatomical enquiry could ever ſhew, or find any receptacle for, nor any reaſoning neceſſarily infer. *Again*, that heat, which frequently accompanies this turgeſcence, led them to think the caſe more than a *plethora*, and that there was ſome extraordinary *inteſtine motion* at that time.

Dr. *Drake* improves on the doctrine of a ferment; and contends, not only that it is neceſſary there ſhould be a ferment, but a receptacle alſo for this ferment: concluding, from the ſuddenneſs and violence of the ſymptoms, that a great quantity muſt be conveyed into the blood in a ſhort time; and, conſequently, that it muſt have been ready gathered in ſome receptacle, where, while it was lodged, its action was reſtrained. But he goes farther ſtill, and pretends to aſcertain the place, &c. both of the one and the other, making the *gall-bladder* to be the receptacle, and the *bile* the ferment. This liquor he thinks well adapted to raiſe a fermentation in

the blood, when diſcharged into it in a quantity; and, as it is contained in a receptacle that does not admit of a continual iſſue, it may be there reſerved, till, in a certain period of time, the *bladder* becoming turgid and full, through the compreſſion of the incumbent *viſcera*, it emits the gall; which, by the way of the *lacteals*, inſinuating itſelf into the blood, may raiſe that *effervescence*, which occaſions the aperture of the *uterine arteries*.

To confirm this, he alleges, that perſons of a bilious conſtitution have the *menſes* either more plentifully, or more frequently, than others; and that diſtempers, manifeſtly bilious, are attended with *ſymptoms* reſembling thoſe of women labouring under difficult *menſtruation*. If it be objected, that, on this footing, men ſhould have *menſes*, as well as women, he anſwers, that men do not abound in *bile* ſo much as women; the pores of the former being more open, and carrying off more of the ſerous part of the blood, which is the vehicle of all the other humours; and, con-

conſequently, a greater part of each is diſcharged through them than in women, wherein the ſuperfluity muſt either continue to circulate with the blood, or be gathered in proper receptacles; which is the caſe in the *bile*.

The ſame reaſon he gives why menſtruation ſhould not be in *brutes*; the pores of theſe being manifeſtly more open than thoſe of women, as appears from the quantity of hair which they bear; for the vegetation whereof, a large cavity, and a wider aperture of the glands, is neceſſary, than where no ſuch thing is produced: yet there is ſome difference between the *males* and *females* even among theſe, ſome of the latter having their *menſes*, though not ſo often, nor in the ſame form and quantity, as women.

He adds, that the ſeveral *phenomena* of the *menſes*, whether in a natural, a regular, or diſeaſed caſe, flow naturally and readily from this *hypotheſis*; and that whatever may be accounted for from a *plethora*, or from any particular *ferment*, may, without any ſtraining, be applied to this.

The root of *black hellebore*, and *ſteel*, are the principal remedies for obſtructions of the *menſes:* the former is almoſt infallible, and in many caſes where the latter is not only ineffectual, but improper, as in plethoric habits; for, with ſuch, *ſteel* will ſometimes raiſe *hyſteric* commotions, convulſions, and a kind of *uterine furor*; whereas *hellebore* thins the blood, and diſpoſes it for a diſcharge, without making it more impetuous: ſo that though both provoke the *menſes*, yet they do it by different ways; *ſteel* by increaſing the blood's velocity, and giving it a greater moment againſt the *uterine* arteries; and *hellebore*, by dividing it, and rendering it more fluid.

But, likewiſe, the menſtrual diſcharges frequently run to exceſs. In that caſe, the flux is to be reſtrained; which, after letting blood, is effected, both by thoſe medicines which condenſe and inſpiſſate the blood, and by thoſe which allay its heat. Of the firſt ſort, the principal are ſuch as participate of *vitriol*, or *alum*; eſpecially the *tincture of roſes*; or a powder compounded of *alum* three parts, and *dragon's*

dragon's blood one part, melted together. But the heat of the *blood*, and its conſequence the flux, is more powerfully checked by the *Peruvian bark*, than by any other medicine whatſoever.

The Pleuriſy and Peripneumony.

AN inflammation of the integuments of the inſide of the *thorax*, whether it be the *pleura* or *mediaſtinum*, is called a *pleuriſy*; of the *diaphragm*, a *paraphrenitis*; and of the ſubſtance of the lungs, a *peripneumonia*.

A *pleuriſy* and *peripneumony* have ſome reſemblance in their general ſymptoms, and are thence ſometimes miſtaken one for the other.

They are both attended with an acute, continuous, and inflammatory fever, by means of which *Nature* is labouring to break through the obſtruction made by the ſtaſis of the blood in thoſe parts; a pain in the ſide, a cough, and a difficulty of breathing.

A vertiginous diſorder of the head precedes all other *ſymptoms*, which is ſucceeded by a ſhivering and chillneſs all over the body: this increaſes by degrees, and uſually brings on *cardialgias*, *nauſeas*, and *anxieties*: after this there comes on a remarkable heat, with an

an intenſe thirſt, and a violent pain in the head: this is accompanied with a ſtraitneſs of the breaſt, a pricking pain, and difficulty of reſpiration, which is greatly exaſperated by the *cough*.

In the *peripneumony* the pain extends farther than in the *pleuriſy*, and affects the whole breaſt; which makes the principal diſtinction between theſe two diſtempers.

Theſe diſeaſes are not equally common to all ages, but they principally affect young people, and ſuch as are of a ſanguine, plethoric habit; and, moſtly, in the ſpring ſeaſon.

They are naturally brought on by immoderate exerciſes, and cooling too haſtily after violent heats, as by drinking cold water, lying in the open air, &c. The neglect of habitual bleedings may alſo occaſion them.

The great remedy is *copious* and *repeated bleedings*; by the omiſſion of which the patient is frequently *ſuffocated*. The rule is to let blood ſo long as the indications of a *hard pulſe*, a *troubleſome cough*, and an *uneaſy reſpiration* make it neceſſary; or till a *ſizineſs* appears no longer on the top of it.

Cooling clyſters, emollient fomentations, and bathing the feet and legs in warm water, are excellent means to reſolve, ſoften, and looſen the *rigid fibres*, and diſſipate the humours which were the firſt cauſes; and theſe, with the aſſiſtance of warm diluting drinks, and ſome of the fixed ſalts neutralized with acids, taken warm alſo every three or four hours, with ſome gentle expectorants between whiles, and the uſe of a ſlender diet, are the ſafeſt, and moſt certain means to keep the body ſoft and moiſt, mitigate the cough, make expectoration eaſy, help the breathing, aſſuage thirſt, and render the diſcharges free by ſtool and urine, whereby numberleſs ill effects attending theſe violent diſtempers are guarded againſt, and relapſes with a great degree of certainty prevented.

Theſe two diſeaſes are to be carefully diſtinguiſhed from other ſpurious ones. In the true pleuriſy and peripneumony a pain is felt about, or a little below the nipple; but in thoſe which are ſpurious, it is higher, and uſually about the clavicle. In the genuine diſeaſes, the pains are equal and regular, anſwering

ſwering to the pulſe; in the ſpurious, they are vague, and wholly irregular. In the true, they are alſo continual; but in the ſpurious, they have frequent intermiſſions and remiſſions. The true have always a cough attending them, with a ſpitting of *coloured matter*, often *ſtreaked with blood*; but the ſpurious often have no cough at all, or, if they have, there is no difference ſeen in the matter voided by ſpitting. The true have always an acute continuous fever, which attacks the patient at firſt with a ſhivering; the ſpurious either have no fever at all, or but a ſlight irregular one.

They are cured by *bleeding*, *clyſters*, *thin diet*, *diluters*, *abſtergents*, and *aperients*.

A late celebrated writer notifies a *peripneumony* to be the laſt fatal ſymptom of every diſeaſe; for nobody dies without a ſtagnation of blood in the lungs, which is the total extinction of breath.

Para-

Paraphrenitis.

THIS is a ſecondary kind of *phrenzy*, ſuppoſed, by the antients, to be owing, not to any immediate diſorder of the brain, or meninges, but to an inflammation of the ventricle and the liver, and eſpecially of the *diaphragm*, whereby the brain and meninges come to be affected by conſent of parts.

The ancients called it a *pſeudo-phreneſis*, falſe phrenzy; to diſtinguiſh it from the true one, which they made to conſiſt in an inflammation of the brain and its meninges.

Among modern phyſicians, *paraphrenitis* is ſometimes uſed for an inflammation of the *mediaſtinum*, or *pleura*, about the *diaphragm*; attended with a continual fever, and exquiſite pain in the parts affected, on contracting the abdominal muſcles; as alſo a *delirium*, and a riſing of the *hypochondria*.

This diſeaſe is always attended with a moſt violent, and painful *cardialgia*; inſomuch that

that the patient cannot bear the leaſt touch of a finger on the region of the breaſt or ſtomach. It always brings on a tumor of the *præcordia*, and an alienation, or roving of the *mind*; which is perceivable in the words and actions of the patient, but not in ſo great a degree as in the true phrenitis. The reſpiration is interrupted by frequent ſighings: belchings are very frequent, as alſo the diſcharge of a black matter by vomit. The mouth is dry and parched, and the tongue very white and furred; and there is, at the ſame time, a great thirſt.

The moſt frequent cauſes of this, are a ſudden tranſlation of the morbific matter in fevers, to the *diaphragm*; a ſuppreſſion of natural hæmorrhages, by the noſe, the hæmorrhoidal veſſels, or by the menſes; an omiſſion of habitual bleedings, and the drinking of cold liquors when the blood is over-heated by exerciſe; and, finally, a tranſlation of the matter of a *quinſey* to this part.

This is a moſt dangerous malady: yet ſometimes the matter which cauſed the obſtruction is eaſily diſcuſſed; and ſweats, happening

pening on the critical days, carry off the diſtemper. And ſometimes the morbific matter is reſolved, and in length of time tranſlated to the joints, where it brings on either the *gout*, or *eryſipelatoſe diſorders*. But, moſt commonly, it preſages a *gangrene*, which is preceded by violent *hiccoughs*, *coldneſs of the extremities*, and *clammy ſweats*.

When the patient is of a *plethoric habit*, bleeding is extremely neceſſary; and ſometimes, where the *ſymptoms* require it, may be repeated to the third time: and, if the peccant matter remains in the *primæ viæ*, a gentle *emetic* is to be given, with the *digeſtive medicines* after it. Twenty drops of the *miſtura ſimplex* may be given, in a doſe, every four hours, in the morning; and, in the afternoon, powders of *nitre*, with *vitriolated tartar*, and *crab's eyes* ſated with *juice of lemon*. Beſides theſe, there may be applied, externally, to the breaſt and back, plaiſters with a large portion of *camphor*; *ſinapiſms* and warm *cataplaſms* to the ſoles of the feet. Stimulating *clyſters*, and acrid *ſuppoſitories*, have alſo their uſe in this caſe; and the application

cation of *leeches* to the hæmorrhoidal veins, in people, eſpecially, who have been ſubject to diſcharges from thence, is very often of ſingular ſervice. All the while, there muſt be kept up a gentle tranſpiration, either by copious draughts of warm and weak liquors, or by lightly acidulated medicines.

Apoplexy.

THE quick event of *Apoplexies* is owing to a ſudden abolition of the power of action, in all the external and internal ſenſes, from any cauſe ſufficient to prevent the flux and reflux, to, and from thoſe organs: whatever, therefore, preſſes upon the *arteries* and *nervous veſſels* of the *brain*, ſo that neither the *blood*, nor *ſpirits*, can flow through them, is the common cauſe of an *apoplexy*.

The fatal ſtroke of this diſtemper often happens to perſons in their beſt health, without any warning; and it is ſometimes ſo very ſudden, and inſtantaneous, that *life* and *death* may be ſaid to be in the very ſame moment of time. Doctor *Thorpe* witneſſed this circumſtance, in the death of Lord *Vane*, *Anno* 1734; and ſaid it could be compared to nothing ſo quick, but a flaſh of lightning. I had the melancholy account given me, ſoon after it happened, by the Doctor himſelf: That

That this Lord, and he, a-while before dinner-time, were walking in a long room at *Fair-Lawn*, in *Kent*, a few days after the election for that county, whilſt his Lordſhip was giving him a relation of particulars on that occaſion: that, in the midſt of his diſcourſe, without the leaſt ſtop, or heſitation, he fell down dead—*dead*, ſaid he, before he touched the floor.

The *Doctor* lamented that the uſe of the *lancet* could not be experienced, till ſome diſtance of time after this happened; which rendered the uſe of it, as well as all other means to reſtore life, ineffectual.

In diſſecting perſons dead of *apoplexies*, clotted extravaſated blood is uſually found in one, or both ventricles of the brain.

Hippocrates diſtinguiſhes two kinds of *apoplexies*, the one ſtrong, the other weak; only differing in the greater, or leſs difficulty of reſpiration, and pulſation. In the former, the pulſe and breath ſeem almoſt entirely ſtopped; in the latter there are conſiderable remains of them.

The more modern authors diſtinguiſh apo-

plexies, from their cauſe, into ſanguineous, and pituitous: to which may be added, lymphatic, polypous, ſerous, atrabiliary, &c.

During the fit, copious bleeding in the *jugulars* is to be put in practice without delay, that the circulation may be kept open and free; whereby the arteries will have their full force and action, to overcome the obſtructing cauſe; and without which all other remedies are of no effect.

The next means is by *clyſters*, to empty the bowels; without adding any violent ſtimulus at firſt. The common decoction, with *ſoap*, *honey*, and common *ſalt* diſſolved, is ſufficient.

Mean time the head muſt be ſhaved, and embrocated well with warm *vinegar*; and the ſteam thereof received plentifully into the *mouth* and *noſtrils*, by means of a piece of ſponge dipped therein. A ſtupe wrung out of hot *vinegar*, alſo, is to be applied to the *ſcrobiculum cordis*; and renewed occaſionally. Some *ſpiritus nitri dulcis*, dropt on ſugar, is to be put into the patient's mouth frequently.

If the patient recovers from the fit, *nitre*, and

and the *neutral ſalts*, ſhould be given very freely, to cool, and attenuate the blood, interpoſing gentle purges from time to time: and, to prevent a relapſe, an abſtemious thin *diet* ſhould be ſtrictly enjoined; with a perpetual bliſter, or ſeton in the neck; or interſcapulary iſſues, with frequent bleeding.

The *pituitous*, or *ſerous apoplexy*, which chiefly affects thoſe of a cold, and *phlegmatic conſtitution*, requires a very different treatment. *Bleeding* muſt be ſparingly uſed, except in the fit; the intention of the cure being to attenuate the viſcid heavy fluids, promote the abſorption of the ſerous watery matter in the *ventricles* of the *brain*, and carry it off by the common emunctories. Aromatic, warm, ſtimulating *medicines*, are neceſſary afterwards, to mend the *blood*, and ſtrengthen the *conſtitution*.

These views are to be obtained by ſtimulating *clyſters*, and briſk purges; by bliſters to the back, thighs, and legs; and, laſtly, to the *head*: by ſtimulating *cataplaſms* to the feet, and ſuch kind of medicines to the *noſe* alſo: finally, by *vomits*, *apophlegmatics*, *iſſues*,

ſetons, &c. to prevent a relapſe, and drive the humours from the *brain*.

To correct, and give a briſk circulation to the *blood*, *volatiles*, and other warm medicines, muſt be freely taken; as *valerian*, *muſtard-ſeed*, *winter's bark*, *horſe-radiſh*, either given in ſubſtance, or ſtrong infuſion: for this purpoſe the *gum pills*, with *arum -root*, *cinnabar*, &c. may be directed, with a warm purge between whiles: the body ſhould never be coſtive, but kept open with *pil. Ruffi.* or *tinct. ſacra*; and the diet ſhould be generous.

but

The Gout.

THE *Gout* is a painful illneſs occaſioned by a flux of ſharp humours, creating a vitiated temper in the ſmalleſt nervous veſſels, and their fluids.

Its neareſt origin is from an indigeſtion in the bowels, whereby the aliments are not ſufficiently attenuated to ſupply the nerves with juices proper for them.

It may be conſidered as a periodical, and critical *paroxyſm*, tending to free the body of an offenſive and corroſive matter, by throwing it upon the extremities; breathing it out inſenſibly, or comminuting it ſo as to render it harmleſs, or capable of circulating freely along with the juices, till, by collecting again, gradually increaſing, and ſeparating from the blood, it cauſes another *paroxyſm*.

The *gout* may be hereditary, or natural to the conſtitution, proceeding from a too great conſtriction of the capillary veſſels;

whence the morbid cauſe is more eaſily lodged, or detained therein: or it may have its origin from *high living*, *crapulas*, a *ſedentary life*, *obſtructed perſpiration*, and *a ſuppreſſion* of the *natural excretions*.

It is obſerved that young people are ſeldom troubled with the *gout*, unleſs it be hereditary; and that it rarely attacks before the patient is thirty-five, or forty years old, and ſometimes not till the decline of life; and that the corpulent are more ſubject to it, than thoſe who are ſpare, and lean.

A cold ſhivering uſually precedes this malady, and generally a fever accompanies its firſt appearance; which ſoon goes off, and returns by intervals.

The progreſs of this diſeaſe is moſt commonly from the *great toe*, where it uſually fixes, to the *tarſus* and *metatarſus*; immediately affecting the *tendons*, *nerves*, *membranes*, and *ligaments*, about the joints; and, by diſtending, and irritating the parts, it cauſes a violent pain, not unlike that of a diſlocated bone, which increaſes towards night, and decreaſes towards morning; and hence ariſes an in-

inflammation, and ſwelling, which increaſes as the pain increaſes, with a violent tenſion, and, as it were, a laceration of the ligaments: and ſometimes it is repreſented like the biting, or gnawing of a dog, with an intolerable *ſqueezing*, or *coarctation*. At the ſame time, the part affected has ſuch an exquiſite ſenſe, as not to be able to bear the leaſt weight of bed-cloaths; and the mind of the patient, alſo, is ſo very irritable, that he cannot ſuffer his attendants even to ſtep about the room.

When the tumefaction arrives to the pitch, there follows a remiſſion of pain, and the *paroxyſm* ends with a *diaphoreſis*, an itching, or changing into a chalky ſubſtance, which breaks the veſſels.

In conſtitutions much broke, and ſhattered with the *gout*, thoſe chalky concretions, formed in the joints of the fingers or toes, are thence tranſlated to the *viſcera*; which caſes are often attended with irregular, frequent, and ſhort *paroxyſms*, in the extremities: and in the decline of life, when the uſual fits do not happen, or if the gouty matter be ſuddenly repelled from the extremities, by an improper

regimen, it uſually ſeizes the internal parts, and frequently the ſtomach, head, inteſtines, &c. cauſing want of appetite, retching to vomit, indigeſtion, a *cachexia*, the *jaundice*, *aſthma*, *diarrhœa*; and, at laſt, ſo obſtructs the *fine capillary nervous tubes* (eſpecially thoſe of the ſtomach and brain), as poſſibly to hinder the flux of the *animal ſpirits*, and to be the cauſe of ſudden and fatal conſequences.

For *arthritic* complaints, of whatever denomination, the general method of treatment is nearly the ſame, in all.

Bleeding in the beginning, or at the coming on of a fit, and alſo in its decline, is of real uſe; eſpecially the applying four or five leeches to the *hæmorrhoidal* veins; or, in the *ſciatica*, *cupping*, with deep ſcarification, on the part: by this means alone, this diſeaſe has been abſolutely cured, ſo as never to return again.

The crudities in the *primæ viæ*, eſpecially ſuch as are of a bilious nature, are to be carried off either by vomit, or other detergent means, as *tartarum vitriolatum*, *&c.* as they are the occaſion of ſpaſtic pains.

The

The violent emotions of the *blood*, and its acrimonious quality, are to be attemperated, and the rigors of the ſolids ſoftened, and taken off by means of the *ſaline nitrous abſorbents*; and *ſudorifics*, artfully adminiſtered, with ſuch medicines as have been experienced to reſtore the loſt vigour of the bowels, are of the greateſt benefit.

To pacify the raging pain, *nepenthe*, dropt upon ſugar, is the moſt prevailing medicine, with warm milk-whey taken between whiles; and, externally, emollient *cataplaſms*, or *fomentations*, and *anodynes*, applied hot, have a very good effect.

Above all things, when the fit is gone off, the occaſional cauſes of its returning are to be avoided: theſe are, a too rich diet, drinking too much wine, the immediate uſe of *venery*, violent emotions of the *mind*, by anger, or other paſſions, and immoderate exerciſes: and if theſe are not reſtrained, the return of eaſe will probably be but of ſhort duration.

Monſieur de Sault, being of opinion that the *gout* depends on the want of perſpiration, propoſes warm baths, exerciſes, keeping al-

ways

ways warm, and defending from cold; clean cloaths, moderate eating, abſtaining from ſuppers, tranquillity of mind, friction, and milk-diet, as preſervatives from it,

A gentleman of my own acquaintance, was cured of the gout, by a very copious bleeding at the noſe, at the age of ſixty-four, and lived many years after: he was attacked early in life, and had ſuffered frequent and ſevere *paroxyſms*.

Rheumatiſm.

AN univerſal ſhivering, followed by a feveriſh heat, thirſt, and reſtleſsneſs; and ſucceeded by ſharp pains, affecting the membranes of the muſcles, and capſulæ of the nerves; are the general ſymptoms of this diſtemper, ariſing, for the moſt part, from an obſtructed perſpiration.

It is to be treated, as other inflammatory diſorders, by repeated *bleeding*, *clyſters*, gentle *perſpiratives*, and a cooling, diluting *regimen*.

Aperient apozems, with nitre diſſolved, and drops of *vinum antimoniale*, are uſeful remedies to anſwer theſe purpoſes.

When the pains are extreamly violent, after ſufficient bleeding, a *bath* of warm water, in which the patient ſhould remain an hour, affords the greateſt relief. Great care muſt be taken afterward, to prevent his receiving injury from the cold air. He muſt,

muſt, therefore, be wrapt up in a well-aired ſoft blanket, and laid in a warm bed; and ſupplied with draughts of warmed gruel, to ſweat freely. His diet ſhould be very thin, and it is neceſſary that he ſhould be taken out of bed every day. *Ptiſans*, and *Emulſions*, or draughts of ſweet-wort warmed, are ſerviceable as common drinks. And when the uſe of the *lancet* ſeems to be no longer neceſſary, a common purging potion, with a paregoric draught, at night, may be given every two or three days, till the patient recovers.

If the pain, and ſwelling of the joints remain, after the fever is abated; apply three or four *leeches* to the part, where the inflammation and tumefaction are greateſt; letting the blood ooze out, till it ſtops of itſelf. The repetition need not be limited.

When the fever goes off, and the patient ſeems to be recovering, the pain often moves from one joint to another. In this caſe, about half a dram of *ſap. Venet.* ſhould be taken twice or three times every day, with a draught of *ſaſſafras tea*, and thirty

or

or forty drops of *vin. antimon.* and the articulations ſhould be lightly rubbed with a piece of dry flannel.

Young people, not accuſtomed to drink wine, have been cured of *rheumatiſms*, by living wholly upon *whey*.

Hepatitis.

THIS is an acute, continuous, and inflammatory fever, in which Nature frequently and forcibly propels the humours through the *liver*, ſeemingly with intent to reſolve and abſterge congeſtions and *ſtaſes* of the blood in that *viſcus*. It is of all other fevers, perhaps, the moſt fatal. It differs, however, in degree; the inflammation of the *liver* proving more internal, or ſuperficial.

This *fever* uſually ſeizes the patient with a chillneſs, which laſts a conſiderable time: it is ſucceeded by a violent heat, which is much more intenſe at ſome times than at others, and is attended with an unſupportable thirſt. The *patient* complains of a ſevere, and heavy pain, on the right ſide; and is afflicted with a great ſtraitneſs of the breaſt, and difficulty of breathing. The urine is high-coloured, and thick, and after a few days depoſits a ſediment, of a mucous kind, which

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ſome have miſtaken for a ſuppurated *pus*: but the diſtinction between this ſediment, and true *pus*, is eaſily made, as the *pus* always ſubſides immediately on the making the water; but the other ſediment not till it has ſtood to be cold, and this ſediment becomes diſſolved and mixed again with the urine, if the veſſel containing it be ſet in hot water, which the true *pus* does not.

The general cauſes of the *Hepatitis* are a plethora, or a derivation of blood into the liver, which, mixing with the bilious humour, forms congeſtions and ſtagnations. Theſe may be eaſily conceived to occaſion this diſeaſe, by means of violent heat and motion: for, if the *oil of ſweet almonds* were to ſtand in a hot place, or in the open air, for a fortnight or three weeks, in the ſummer-ſeaſon, it would have a very pungent, nauſeous taſte, and, if drank, occaſion violent inflammatory diſorders; for it is then as great a cauſtic as *euphorbium* itſelf. And this may be the reaſon, why the *bile* in animals, which is an unctuous humour, when too long detained, becomes

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ſo ſharp and corroſive as to occaſion terrible diſorders.

The cure of this diſeaſe is very difficult, and its manner of going off very variable and uncertain. In ſome caſes it goes off by regular diſcuſſion; ſometimes by copious bleedings at the noſe, or by profuſe ſweats which come on, on the regular critical days; and ſometimes by the excretions, by the bowels.

Bleeding is generally neceſſary, and proper in the beginning of the diſeaſe; and, after this, the bowels are to be kept gently open by emollient *clyſters*, and the mildeſt and gentleſt *cathartics*. The *mixtura ſimplex* is a very valuable medicine given ſeveral times a day; and the following powder in the intermediate hours: viz. *Lap. cancr. citr. p. iij. calc. antim. p. ij. nitr. p. j.* The doſe of this mixed powder is one ſcruple. While theſe things are given internally, the region of the *liver* ſhould be bathed externally with *ſpirit* of *wine camphorated*, impregnated with *ſaffron*. If the diſeaſe is very violent, a gentle *anodyne* is to be taken at night: and, above all things, reſt,

reſt, moderate warmth, and a placid regimen, are to be obſerved. With all theſe, the diſeaſe is oftener fatal than curable.

From the affections of the *liver*, cauſed by either extream in the tenacity or thinneſs of the *bile*, rendering it uncapable to perform its proper offices, many diſeaſes, and thoſe of contrary natures, are the well-known conſequences.

In the firſt caſe, which regards thoſe chiefly who live ſedentary lives, and without proper exerciſes of the body, the *bile* is obſtructed in the *ſecretory glands*, and the ſmall quantity that is ſecreted, ſtagnates in the *hepatic ducts*; whence the *liver* grows hard, and under its tunicle are formed whitiſh concretions, reſembling hard *ſoap*.

In the other caſe, reſpecting ſuch as are accuſtomed to high feeding, and drinking much of ſpirituous liquors, the *volatile ſalt*, which is one of the compounding principles of the *bile*, over-abounds; whence the *bile*, becomes too thin, hot, and irritating. In the former caſe, the body is too coſtive; in the latter, too lax.

But for the better underſtanding the cauſes of the different temperaments of the *bile*, and their effects, the moſt celebrated *Boerhaave* is to be conſulted beyond all other writers on the *jaundice*, *hepatitis*, &c.

Angina.

THERE are two ſpecies of the *Angina*, or *Quinzy*: the firſt is without any ſenſible tumor, either externally or internally; the other is attended with a tumor. The firſt is commonly the conſequence of ſome very long diſtemper, eſpecially after large and repeated evacuations: it is accompanied with a paleneſs, dryneſs, and thinneſs of the fauces; becauſe, for the moſt part, the *nerves* and *muſcles* are extenuated and relaxed: it is almoſt always a ſign, that *death* is juſt approaching. Sometimes, alſo, this ſort of *quinzy* comes on a ſudden, without any other diſtemper preceding: it is ſcarce ever cured, and almoſt always, after death, the *lungs* are found ſuppurated. Remedies are indicated, which fill the empty veſſels with good nouriſhment, and warm and ſtrengthen the body in general: and there have been ſome inſtances, where fumigations

of *cinnabar*, *milk*, and the *bark*, have proved ſucceſsful, even in theſe caſes.

The other ſpecies of the *quinzy*, which is with an inflammation and tumor, affects various parts, as the *tongue*, and its *muſcles*; the *palate*, the *tonſils*, the *uvula*, the *pharynx*, and *larynx*, and their *muſcles*; the muſcles of the *os hyoides*, *the wind-pipe*, the *æſophagus*, and its *muſcles*, &c. The more of the forementioned parts that are inflamed, the more grievous the diſtemper is, and the more dangerous: for inflammations here proceed in the ſame manner as others do, and are liable to undergo the ſame changes, viz. to be reſolved or diſcuſſed, to be ſuppurated, to *gangrene*, or to degenerate into a *ſcirrhus*.

In this inflammatory ſpecies we ought, by all means we can, to endeavour to procure a reſolution: firſt, by large and repeated bleedings: ſecondly, by giving purges, or by clyſters: thirdly, by very thin and ſlender diet: fourthly, by nitroſe and ſubacid medicines: fifthly, by warm *vapours* continually uſed, as,

℞ Acet.

℞ Acet. Sambuc.
—— Roſar.
—— Calend. āā ℥j.
Aq. ſtillat. Samb. ℥vj. M.

Let the warm fumes of it be drawn into the throat through a funnel. Beſides, likewiſe, *fomentations*, *catap'aſms*, *epiſpaſtics*, &c. may be made uſe of.

Theſe means failing of ſucceſs, the inevitable danger of the diſtemper being firſt declared, bronchotomy is to be propoſed: viz.

About a thumb's breadth below the *larynx*, having firſt laid open the integuments, make an inciſion with a *lancet* between the ring-like cartilages of the *wind-pipe*, large enough to put in a ſilver tube, which is to remain till the cauſe is removed: mean time, nouriſhing clyſters are to be frequently injected, until the patient be again capable of ſwallowing.

This is the method of practice recommended by *Boerhaave*; who may be conſulted alſo of the *ædematous*, the *catarrhous*, the *ſuppurative*,

purative, and the *gangrenous quinzy*, of all which he has diſtinctly treated.

Many, in the cure of quinzies, extol bleeding in the ranula, under the tongue; ſome the jugulars; others prefer the foot to both, by reaſon of the greater revulſion.

Lotus optimus eſt ſequens:

℞ Rad. Apij
—— Lapath. acuti
—— Acetoſæ
—— Graminis, āā ℥j.
Fol. Acetoſæ
—— Agrimoniæ
—— Becabungæ, aa mij.
Sem. quatuor frigid. major. āā ʒj.
Coq. in Aq. com. colat. pint. iij.
Adde Nitri ʒij.
Rob. Sambuc. ℥iij. M.
De quo æger ſingulis horis capiat uncias tres vel quatuor.

℞ Decoct. Hordei ℔ij.
Syr. Violar. ℥ij.
Sal. Nitr. depurat, ʒj. M.
Bibat pro lubitu.

Bathing

Bathing the feet frequently, in warm water, ought not to be omitted in the cure of this diſtemper.

Putrid Sore Throat.

IT begins with a chillneſs, and heat, alternately; pain in the head, ſoreneſs of the throat, eyes inflamed, faintneſs, and anxiety. The arch of the mouth appears ſwelled; and the palate, and tonſils, and inſide of the throat, are of a florid red colour. Inſtead of this redneſs, ſometimes, ſpots of an irregular figure, of a pale, white, or brown colour, appear ſurrounded with a florid red. An efflorescence, like crimſon, is frequently ſeen on many parts of the body, but eſpecially on the neck and breaſt; and the hands, and fingers, are remarkably ſwelled. The parotid glands are ſwelled alſo, and painful to the touch. The pulſe is quick and ſmall, and ſometimes ſoft and full, ſeldom hard; and the urine pale, and crude. When the diſtemper is ſlight, ſuperficial *ulcerations* appear on the *tonſils*, and throat; but when bad, deep *ſloughs* are formed, of an offenſive

offenſive ſmell, and *ulcerate:* a *delirium* enſues, with heat and reſtleſſneſs for ſeveral days, eſpecially towards night; and a gentle and agreeable ſweat breaks out towards morning, which renders the patient eaſy: a faintneſs, nevertheleſs, ſtill attends.

Bleeding, on account of the lowneſs of the pulſe, is ſeldom recommended; but, in ſome caſes, it is abſolutely neceſſary: and, when inflammatory ſymptoms prevail, *nitrous* medicines may be given with ſafety, and advantage. The more general treatment, however, at firſt, is by warm perſpiratives; the fever-powder (prepared with *calx of antimony* unwaſhed, compound powder of *contrayerva*, and *nitre*), with a few grains of *ſaffron*, and *Ruſſia caſtor*; or the ſaline draughts, made with *ſalt of hartſhorn*: and afterwards the *bark* in decoction, with *ſpirit. Mindereri.* Bliſters, to the back; and, to the neck, from below the ears to the *collar-bone*; are applied with ſucceſs. The ulcers of the throat, may, at firſt, be gently rubbed with *honey of roſes* acidulated, to which,

if

if the putrefaction be great, may be added a little *Ægyptiacum*, and *tincture of myrrh*. But, above all, let the hot ſteam of a mixture of *vinegar*, *myrrh*, and *honey*, be often taken into the throat by an inverted funnel; to which *ſpt. Minder.* may, alſo, be added. This ſteam is more efficacious than any *gargariſms*, and cannot be uſed too frequently. Some of the ſame mixture, alſo, may be injected warm with a *ſyringe*. But, if the putrefaction gains ground, the parts muſt be ſcarified, and kept clean by ſyringing; and the vapor, notwithſtanding, be frequently applied. If the patient be low, add *confect. cardiac.* to the *bark-draughts*; or, in caſe of a purging, a proper quantity of *diaſcordium*: and, after every looſe ſtool, give two ſpoonfuls of the following mixture:

℞ Aq. Cinnam. ten. ℥vj. Confect. Fracaſtor. ʒiij. M.

When the *bark* cannot be taken in ſufficient quantity by the mouth, it may be given by way of clyſter; an ounce of the fine

fine powder, to be mixed with a ſufficient quantity of warm *oxycrate*, for this purpoſe: and it may be repeatedly occaſionally; adding, if it be found neceſſary, *tinct. thebaic. q. ſ.*

By this method, the ſloughs will be likely to ſeparate, and the ſymptoms in general abate; but will leave the patient languid, weak, and low, with ſome *hectic* appearances: to remedy which, the *cortex* with *elixir of vitriol*, *aſſes milk*, the country air, gentle exerciſe, and good wholſome diet, prove extremely beneficial.

Before we quit this ſubject of ſore throats, it may be neceſſary to obſerve, that there are many inflammatory caſes, where it will be hazardous to wait till the tumefaction burſts of itſelf, without riſking the ſuffocation of the patient; eſpecially when ſeated at the root of the tongue. On theſe preſſing emergencies, when rigors and ſhiverings, preceded by throbbing pains, have denoted the formation of matter; after depreſſing the tongue, the tumor muſt boldly be cut into by a curved knife; and ſometimes the inciſion muſt be

made

made deep, in order to enter the cavity where the matter is lodged. It requires, indeed, no ſmall degree of *chirurgical* ſkill, to conduct ſuch an operation; but an accurate examination of the parts with the fore finger, where the fulneſs is moſt diſtinguiſhed, and ſoftneſs moſt manifeſt, will be the beſt directory for the knife; which, ſhould it fail to penetrate the cavity, will be attended with this advantage, that the diſcharge of the blood will deplete the veſſels, and facilitate reſpiration, now in the utmoſt danger of being totally impeded.

Gangrene and Sphacelus.

THE *Gangrene* is a mortification, beginning to corrupt a fleſhy part, while it retains ſome ſenſe of *pain*, and a ſhare of the natural heat; turning black, and ſpreading itſelf to the adjoining parts. It ariſes from an obſtruction of the circulatory motion of the blood, which, by this means, fails to ſupply the part with the nutritious and ſpirituous juices, neceſſary to preſerve its warmth and life.

This interception of circulation, which is the proximate cauſe of the *gangrene*, is itſelf occaſioned divers ways; as by large tumors, great inflammations, violent cold, tight bandages or compreſſions, ſudden fluxions of ſome malignant humor, venomous bites, fractures, wounds and ulcers ill-treated.

It is diſtinguiſhed by the colour of the fleſh, which firſt turns pale, then duſky or ſublivid; and by its growing looſe and flabby, from

from being vehemently tenſe before. In the progreſs of the diſeaſe, the part diſtils a fetid, diſcoloured water; and emits a *cadaverous* ſmell; then withers, and ſoon becomes inſenſible.

Great care is to be taken, if poſſible, to prevent the diſeaſe terminating in a *ſphacelus*. In ſtrong habits, it is always proper, at firſt, to bleed largely; and repeat it, as occaſion ſhall require: and it is a moſt neceſſary ſtep, in theſe caſes, to be very careful, in the beginning, to remove all violent external cauſes of inflammation; as too ſtrict bandages, in *wounds*, and *fractures*; all foreign bodies, which are accidentally lodged in the parts, as *thorns*, *ſplinters*, *needles*, and the like; and all improper external applications, ſuch as *oils* and *plaiſters*, with cooling and aſtringent things; and eſpecially, in old or weak people, to keep up the ſtrength by ſuch diet as affords good and ſuitable juices for nouriſhment. If the patient is weak, and in years, and naturally of a cold habit, eſpecially if he has loſt much blood, and abounds in crudities, the moſt ſuitable diet for him will be ſoups and broths,

broths, made of *chicken*, or *meat*, with *mace* and other ſpices boiled in them; alſo draughts of *cordial liquors*, with *yolks of eggs*, *cinnamon* and *ſugar*; *eggs* themſelves poached, and eaten ſoft; ſtrong jellies of *calves feet*, *hartſhorn*, and *ivory ſhavings*, and old and rich *wines*. With reſpect to medicines, the proper ones are the *cordial tinctures*, *waters*, and *electuaries*, with *ſpices*, and other *cordial* ingredients; and teas made of *ſage*, *ſcordium*, and the like herbs, with the *ſpices*, or ſhavings of *ſaſſafras* and *yellow ſanders*: for by theſe means, the ſtagnating blood will be greatly reſolved and attenuated, and its ſound and healthy parts will be retained in a due circulation, and its noxious ones diſcharged and diſſipated. It is alſo of ſome ſervice in theſe caſes frequently to apply a *ſpunge* dipt in *Hungary water* to the noſe, or to bind it to the wriſts, or temporal arteries: the crumbs of *rye* bread, mixed with powdered *cloves*, and ſteeped in ſtrong *vinegar*, and afterwards made up into a ball, and held frequently to the noſe, is alſo a thing of no little ſervice. For patients who are of a more warm, ſanguine,

guine, and bilious habit, ſoups and decoctions mixed with the juices of *lemon*, or other vegetable acids, are very proper ſtrengtheners; as alſo *barley gruel* mixed with *ſyrup of lemons* or *mulberries*, or with jelly of *currants*, to be taken daily for the common drink. But in theſe caſes, when the heat is ſmall, and the patient weak, or before accuſtomed to *wine*, it may be allowable to mix a little *wine* with the gruel: *Rheniſh* is of all wines the moſt proper on this occaſion; and a glaſs of that, or, if neceſſary, of a richer wine, may be given at proper intervals.

The temperate, or cooling medicines, commonly given in *fevers*, may alſo be adminiſtered properly in theſe caſes; but, above all others, the *bark* is generally eſteemed the great internal remedy in this diſorder. To theſe muſt be added, the *ſurgeon*'s utmoſt attention in the diſcharging the ſtagnating and corrupted blood from the parts, as ſoon as poſſible, and to prevent the neighbouring parts from being affected thereby: the principal methods of doing this are, while the proper internal medicines are given, to make *ſcarifi-*

cations,

cations, as occaſion ſhall direct, upon the parts affected with the *ſcalpel:* theſe inciſions are to be made all lengthwiſe, and very numerous on the part, and are to be opened to a ſufficient depth; that not only the ſtagnating blood may be by that means diſcharged, but free way may be made, by thoſe openings, for the ingreſs of the medicinal applications. And, laſtly, diſcutient, balſamic, and ſtimulating *fomentations* and *cataplaſms* are to be with great care applied to the affected parts, and frequently renewed. A very excellent fomentation, on theſe occaſions, is made by mixing, with a pint of lime-water, three ounces of *camphorated ſpirit of wine*, with half an ounce of *ſpirit of ſal armoniac*, or of *ſpirit* of *wine* with *myrrh*, *aloes*, and *ſaffron* infuſed in it, or *ſpirit of wine camphorated*, with a ſmall quantity of *Venice treacle*, and *elixir proprietatis*. A decoction of *rue*, *wormwood*, *ſouthernwood*, and *chamomile flowers*, alſo, with an admixture of four ounces of *Venice treacle*, *Caſtile ſoap* two ounces, and half an ounce of *ſal gem.* to the quart, makes a very valuable fomentation; this ſhould be applied

hot ſeveral times in a day, by means of double linen or woolen cloths dipped in it; and a laſting warmth may be ſerviceably kept, by means of a brick made hot by boiling water, and applied afterwards wrapped up in a linen cloth.

To ſtop the progreſs of the *gangrene*, phyſicians preſcribe, internally, *ſudorifics*, and *alexipharmics*; externally, decoctions of quick-lime, either ſimple, or with the addition of *ſulphur*, *mercurius dulcis*, and *ſpirit of wine camphorated*.

Belloſte preſcribes the following, as the moſt efficacious remedy known for *gangrenes*; viz. *quickſilver* diſſolved in double the quantity of ſpirit of *nitre*, or *aqua fortis*; a linen cloth being dipped therein, and applied to the gangrenous part. This alone, he aſſures us, is ſufficient. If the *gangrene* be occaſioned by an intenſe froſt, ſnow water, or a linen cloth dipped in cold water, and applied to the part affected, *Boerhaave* directs as the beſt cure.

In caſes of a perfect *ſphacelus*, or *mortification*, where the parts are become abſolutely dead,

dead, and wholly without ſenſe, and ſoft, ſo as to retain the impreſſions of one's fingers ends, and are plainly fetid and corrupted, all the medicines in the world will be ineffectual to reſtore the part to its life and ſenſe again; and all that remains to be done, is the one miſerable remedy of preſerving the reſt of the body, by cutting off that part, to prevent the mortification from ſpreading farther. A different method is to be taken, however, in this operation, according to the degree of the *ſymptoms*, and nature of the part affected.

If only ſome extremity of the foot, *tarſus*, *metatarſus*, *or inſtep*, or only the bare ſkin and fat are *ſphacelated*, which is ſometimes the caſe, the whole foot is not to be *amputated*, but, preſerving the limb entire, the *ſurgeon* is only to remove that part which is vitiated; and that is frequently beſt to be done by ſuppuration, or, if not to be effected by that means, may be attempted by the *cauſtic*. When it is to be done by ſuppuration, that is to be brought on as faſt as poſſible; and, when it is done, the cruſt or *eſchar*

of the ulcer is to be ſeparated from the ſound parts with proper caution.

To haſten effectually a ſuppuration in theſe caſes, nothing is ſo ſerviceable as the making long and numerous ſcarifications, deep, near the ſound parts; and afterwards the incited parts are to be well anointed with the common digeſtive ointment, and after that treated with the balſamic cataplaſms and fomentations, in common uſe on the like occaſions.

A fomentation, alſo very ſerviceable in theſe caſes, is made by mixing, in a quart of decoction of *ſcordium*, or of barley water, *vinegar of rue* ſix ounces, *ſpirit of wine* with *Venice treacle* four ounces, and two ounces of *common ſalt*: this is to be applied hot with compreſſes to the part, and frequently repeated, till it is ſeen that the diſorder ſpreads no farther; which is known to be the caſe, when we ſee the tumor of the vitiated parts ſubſide, and the edges of the ſound parts become tumid all round: and on the ſecond or third day after this a ſuppuration is uſually formed,

formed, and the ſound parts gradually become ſeparated from the vitiated. After this, to ſoften and promote a ſpeedy ſeparation of the *eſchar*, the following cataplaſm is always found highly ſerviceable: viz. *ſcordium* two handfuls, *mallows*, *marſh-mallows*, and *henbane*, of each one handful, *lavender-flowers* half a handful; let theſe be boiled to the conſiſtence of a *cataplaſm* in *vinegar*, or *oxycrate*, and when in that ſtate, add to them three ounces of flour of *linſeed*, one ounce of *linſeed oil*, and two ounces of *ſal armoniac*. This is to be applied warm over the whole, and retained in a proper degree of heat, as long as it ſhall be found neceſſary, by means of a brick boiled in water, and applied wrapped in a linen cloth, or ſome other like means. After theſe methods have been uſed, and the whole ſurrounding ſkin grows red and tumefied, a cruſt or *eſchar* is then formed by degrees, and the ſound fleſh begins to ſeparate from the reſt: by this we know that the diſorder has done ſpreading, and that an entire ſeparation of the vitiated parts will very ſhortly follow.

When this ſeparation ſhews itſelf beginning, it muſt be promoted as much as poſſible, by dreſſing the part with the common digeſtive, either alone, or mixed with *Venice treacle*, which muſt be retained on between the ſound and dead parts. To make way for this, it is ſometimes neceſſary to divide them a little by the *lancet*; and when that is done, and the dreſſing has been applied, the before-deſcribed *cataplaſm* ſhould be again laid on warm; and in all the ſucceeding dreſſings, whatever is found looſe of the dead part muſt be carefully removed. And if it be neceſſary, from the adheſion of the vitiated parts to the ſound, to uſe the *ſciſſors* or *ſcalpel*, to divide them; this is always to be done with very little either of pain or danger: it will then be proper to dreſs the part with the digeſtive, and a common plaiſter over it, till the corrupted parts are entirely caſt off, and the *ulcer* appears perfectly well cleanſed, and then the cure is eaſily perfected in the common way.

This is the gentler, and moſt common method: ſome ſurgeons, however, from the tedioufneſs

tediouſneſs of it, have recourſe directly, in theſe caſes, to the *cauſtic*. They anoint either the edges only, or elſe the whole of the corrupted part, every day, with *butter of antimony*, or the *cauſtic ſtone* liquefied, till the living parts are ſurrounded by a ſort of *eſchar*, applying afterwards the *cataplaſm* before deſcribed, or others of the ſame kind, to prevent the diſorder from ſpreading; and to make the corrupted parts ſeparate from the ſound, the corroſive *lixivium of Boerhaave* is greatly in repute, and much uſed on theſe occaſions. It is made of three ounces of very ſtrong *quick-lime*, mixed with nine ounces of *pot-aſhes*, firſt ground ſeparately to powder, and afterwards mixed, adding a little water: they are then to be put into a glaſs veſſel, and ſet in a cellar to run by *deliquium*.

As ſoon as they are found to become fluid, the matter muſt be put into a filtre of coarſe paper, and the clear liquor that runs through muſt be kept for uſe. It is to be uſed by dipping a bruſh or feather into it, and rubbing it over the part affected once or twice a

day; or fine linen rags may be wetted with it, and applied all over the part; not forgetting, however, at the ſame time, the uſe of the before-ordered *cataplaſm*: this application is to be continued till the corrupted part begins to caſt off in cruſts or ſcales; and when this is the caſe, it muſt be dreſſed with the common digeſtive, and, when perfectly cleanſed, healed with a vulnerary balſam.

The *cauſtic* before mentioned, which is commended by *Belloſte* in theſe caſes, by rubbing over the parts alſo, will occaſion a ſpeedy ſeparation. And ſeveral great *authors* adviſe the uſing the knife and actual *cautery* in theſe caſes, dividing and burning down to the ſound parts; but the cruelty of this method, and the pain, and ſometimes danger that attends, make the methods of cure by ſuppuratives, and mild cauſtics, much to be preferred: indeed, the ſurgeons in general are not now ſo fond of calling in the actual *cautery* as formerly.

Finally, when the *ſphacelus* is ſo deeply affixed in any part of the upper or lower extremities,

tremities, that it has penetrated through the muſcles as far as the bones, and has either reſiſted the force of all medicines, or the proper time for applying them has been neglected; in this caſe, to preſerve the reſt of the body, the injured part muſt be amputated.

Of

Of the Plague.

IN the moſt ancient times, *Plagues*, like many other diſeaſes, were looked upon as *divine judgments*, ſent to puniſh the wickedneſs of mankind: and, therefore, the only defence ſought after, was by *ſacrifices*, and *luſtrations*, to appeaſe the anger of incenſed *Heaven*.

How much ſoever may be ſaid, to juſtify reflexions of this kind; ſince we are aſſured from *Sacred Hiſtory*, that *Divine Vengeance* has been ſometimes executed by *plagues*; yet it is certain, that ſuch ſpeculations, puſhed too far, are attended with ill conſequences, by obſtructing enquiries into the natural cauſes, and encouraging a ſupine ſubmiſſion to thoſe evils, againſt which, the infinitely good and wiſe *Author* of Nature, has, in moſt caſes, provided proper remedies.

Upon this account, in after-ages, when the profeſſion of *phyſic* came to be founded upon the knowledge or *Nature*, *Hippocrates* ſtrenuouſly oppoſed this opinion, that ſome particular

ticular ſickneſſes were *divine*, and ſent immediately from the *gods*; and affirmed that no diſeaſes came more from the *gods*, than others; all coming from them, and yet all owning their proper natural cauſes: that the ſun, cold, and winds, were *divine*; the changes of which, and their influences on human bodies, were diligently to be conſidered by a phyſician.

Which general poſition, this great author of phyſick intended to be underſtood, with reſpect to *plagues*, as well as other diſtempers.

The origins of all *plagues* and *peſtilences* have ariſen moſtly from ſome one or other of the following cauſes: 1. *Dead carcaſes* of men, horſes, or cattle ſlain, and putrefying above ground by heat and moiſture; *dead fiſhes* alſo, ſwarms of *inſects*, bred in fens and marſhy countries, as *caterpillars*, &c. drowned in the ocean, and thrown aſhore by the tide in ſcorching climates, putrefying likewiſe by heat and moiſture, and poiſoning the atmoſphere with their noxious particles, and volatile, urinous ſalts. 2. *Cloaths*, *rags*, animal and vegetable

vegetable ſubſtances, taken from perſons dying of a *plague*, ſaturated with infectious or *deleterious* particles, which ſteam from them. 3. *Bad food*, i. e. putrefied and rotten, abounding with volatile, urinous ſalts: as the *hydrophobia* in *dogs*, and other *animals*, is probably from ſurfeits of putrefied *carrion*, or elſe the infection communicated by the bites of ſuch animals. And, 4. from poiſonous exhalations ariſing from *volcanoes* and *mines*, excited by ſubterraneous heat and fermentation. Some one of theſe cauſes have been the natural ſource of all the plagues, or peſtilential diſtempers, that have ever been in the world. They ſoon, by their effervescence, rend, tear, and putrefy the ſolids, and break the coheſion of the fluids, and ſo deſtroy animal life.

The *plague* once begun, frequently joins itſelf with ſuch other diſeaſes as the people it attacks are moſt ſubject to: hence, in the northern nations, where the ſcurvy is frequent, it is often ſeen that the plague and ſcurvy appear mixed. Theſe two diſtempers, in their nature ſomewhat agreeing, make each other the worſe, and more violent; but, on the contrary,

contrary, there are other diſeaſes, depending on ſuch contrary cauſes, that the plague, if the patient ſurvives, proves a cure to them.

Dr. *Hodges* inſtances the conſumption, and the *king's-evil*, as two diſeaſes of this kind; which, though in themſelves of the moſt terrible kind, and, when in an advanced ſtage, uſually baffling all remedies, yet he ſaw perſons, in the plague that laſt raged in *London*, cured of both by the *plague*: the ſymptoms of the diſeaſe appearing more mild in theſe, than in other caſes, and the patients at once recovering of both complaints.

Among peſtilential fevers, Dr. *Mead* places the *ſmall-pox* in high rank with the plague: and, though theſe two diſtempers differ exceedingly in their natures, he makes his compariſon with great perſpicuity; both being contagious diſtempers, and both attended with certain eruptions. And as the eruptions, or puſtules, in the *ſmall-pox*, are of two kinds, which has cauſed the diſtemper to be divided into two ſpecies, the diſtinct and confluent; ſo are there two ſorts of eruptions, or tumors, which attend the *plague* alſo. In the firſt,

and

and mildeſt kind of the *ſmall-pox*, the puſtules riſe high above the ſurface of the ſkin, and contain a digeſted pus; but, in the other, the puſtules lye flat, and are filled with an indigeſted ſanies. The two kinds of critical tumors in the *plague* are yet more different. In the moſt favourable caſe, the morbific matter is thrown upon ſome of the ſofteſt glands, near the ſurface of the body, as upon the *inguinal*, *axillary*, *parotid*, or *maxillary glands*: the firſt appearance of which is a ſmall induration, great heat, redneſs, and ſharp pain near theſe glands. Theſe tumors, if the patient recover, like the puſtules of the diſtinct ſmall-pox, come to a juſt ſuppuration, and thereby diſcharge the diſeaſe. In worſe caſes of the diſtemper, either inſtead of theſe tumors, or together with them, *carbuncles* are raiſed. The firſt appearance of them is a very ſmall indurated tumor, not ſituate near any of the fore-mentioned glands, with a duſky redneſs, violent heat, vaſt pain, and a blackiſh *ſpot* in the middle of the tumor. This *ſpot* is the beginning of a *gangrene*, which

which ſpreads itſelf more and more as the tumor increaſes.

But, beſides the agreement in theſe critical diſcharges, the two diſtempers have yet a more manifeſt likeneſs in thoſe livid and black ſpots, which are frequent in the *plague*, and the ſigns of ſpeedy death: for the ſame are ſometimes found to attend the *ſmall-pox*, with as fatal a conſequence. Moreover, in both diſeaſes, when eminently malignant, *blood* is ſometimes voided by the mouth, by urine, and the like: and we may farther add, that, in both, death is uſually cauſed by *mortifications* in the *viſcera*. This has conſtantly been found in the *plague* by the phyſicians in *France*; and I am convinced, from the accounts I have received from others, of the diſſections of many people who had died of the *ſmall-pox*, that it is the ſame alſo in that diſtemper.

This *analogy* between the two diſeaſes, not only ſhews us, that we cannot expect to cure the *plague*, any more than the *ſmall-pox*, by *antidotes*, and *ſpecific medicines*; but will likewiſe direct us in the cure of the diſtemper, with

with which we are leſs acquainted, by the methods found uſeful in the other diſeaſe, which is more familiar to us.

In ſhort, as, in the *ſmall-pox*, the chiefeſt part of the management conſiſts in cleaning the *primæ viæ*, in the beginning; in regulating the *fever*; and in promoting the natural diſcharges: ſo, in the *plague*, the ſame indications will take place. The great difference lies in this, that, in the *plague*, the *fever* is often much more acute than in the other diſtemper; the ſtomach, and bowels, are ſometimes inflamed; and the eruptions require external applications, which, to the puſtules of the *ſmall-pox*, are not neceſſary.

When the fever is very acute, a cool regimen, commonly ſo beneficial in the *ſmall-pox*, is here ſtill more neceſſary: but whenever the pulſe is languid, and the heat not exceſſive, moderate *cordials* muſt be uſed.

Vomiting is not ſo generally ſafe in the *plague*, as in the *ſmall-pox*; ſo that the moſt gentle emetics ought to be uſed, and with great caution too, that the ſtomach and bowels

bowels be not inflamed: otherwiſe, the ſtomach ought to be gently moved.

The eruptions, whether glandular tumors, or carbuncles, muſt be left to the courſe of Nature, as is done in the *ſmall-pox*; but all diligence muſt be uſed, by external applications, to bring them to ſuppurate. Both theſe tumors are to be treated, in moſt reſpects, alike. As ſoon as either of them appears, fix a cupping-glaſs to it, without ſcarifying; and when that is removed, apply a ſuppurative cataplaſm, or plaiſter of warm gums.

If the tumors do not come to ſuppuration, which the carbuncle ſeldom or never does; but if a thin ichor exudes through the pores, or a black cruſt appears upon it, then it muſt be opened by inciſion. And this being done, it will be neceſſary to ſtop the bleeding, and dry up the moiſture with an actual cautery, dreſſing the wound afterwards with doſſils dipt in a mixture of *ol. terebinth.* warmed *pt. ij.* and *ſpt. ſal. ammon. p. j.* and pledgets of common digeſtive, with a ſuppurative cataplaſm over all. The next day the wound ought to be well bathed with a fomentation

made of warm aromatic plants, with *ſpt. of wine* in it; in order, if poſſible, to make the wound digeſt, and the ſloughs ſeparate. After this, the ulcer may be treated as one from an ordinary abſceſs.—Farther, in the glandular tumors, when they are ſuppurate, we ought not to wait till the matter has made its way to the outer ſkin, but to open them as ſoon as they are riſen to any bigneſs; becauſe theſe tumors begin deep in the gland, and often mortify before the ſuppuration has reached the ſkin, as the phyſicians in *France* have found upon the diſſection of many who died of the plague at *Marſeilles*.

This is the method in which the *plague* muſt be treated, in following the natural courſe of the diſtemper. But the patient, in moſt caſes, runs ſo great a hazard in this way, notwithſtanding the utmoſt care, that it would be of the greateſt ſervice to mankind, under this calamity, if ſome artificial diſcharge for the corrupted humours could be found out: for this purpoſe large bleeding, and profuſe ſweating, have been recommended upon ſome experience.

Dr.

Dr. *Sydenham* tried both theſe evacuations with good ſucceſs, and has made two very judicious remarks upon them. The firſt is, that they ought not to be attempted, unleſs in the beginning of the ſickneſs, before the natural courſe of the diſtemper has too long taken place; becauſe, otherwiſe, we can only expect to put all into confuſion without any advantage. His other obſervation is, that we cannot expect any proſperous event from either of theſe evacuations, unleſs they are very copious; there being no proſpect of ſurmounting ſo violent a malignity without bolder methods than muſt be taken in ordinary caſes.

The practice of *bleeding*, in *France*, we are informed, was carried on, with a liberal hand, and very ſucceſsfully: their method was to draw off, the firſt day, twelve ounces of blood, and four or five more every two hours after; till the patient, by the aſſiſtance of a plentiful uſe of ptiſanes, and cooling drinks, fell into a profuſe ſweating, which was uſually kept up for many hours. And Dr. *Sydenham* adviſes it to be continued, without intermiſſion, full twenty-four hours. Indeed, it is more

prudent to run ſome hazard in exceeding, than to let the patient periſh for want of due evacuations.

The juice of *lemons* is commended, as of ſingular efficacy, in the *plague*, and *peſtilential fevers*: *Piſo* relates that it is the principal remedy of the *Indians*; and Dr. *Harris* obſerves that the *Turks* have, principally, recourſe to it. Dr. *Boerhaave* ſays, *vinegar* is juſtly eſteemed for its anti-peſtilential virtues, both as a preſervative from the firſt attack of the *plague*, and the cure thereof: that *Sylvius* took two ſpoonfuls of it every morning, before he viſited his patients, in a general plague ſeaſon; and all along remained perfectly free from every ſymptom of the diſtemper. Dr. *Dover* ſays he cured ſome ſailors of the *plague*, by one very plentiful bleeding, to the quantity of a hundred ounces, and with drink ſharpened with ſpirit, and oil of vitriol.

It has been remarked, both by the *French*, *Engliſh*, and *Germans*, and particularly by *Sylvius*, *Foreſtus*, and *Diemerbroeck*, that, in the time of the *plague*, almoſt all the *ſoap-boilers*,

boilers, *fullers*, and ſuch whoſe buſineſs led them to make uſe of *ſoap*, or even thoſe who put on clean linen that had been waſhed in *ſoapy water*, died of the diſtemper; whilſt thoſe were found to eſcape, who were in like manner any way concerned with *acids*.

The Small-Pox.

THE *ſmall-pox* is a contagious diſeaſe, appearing in puſtules, or ulcerous eruptions on the ſurface of the ſkin, which leave eſchars behind them.

It bears ſo great a reſemblance to the meaſles, that, for a day or two at firſt, it is difficult to diſtinguiſh between them. But this difference is evident, that, in the ſmall-pox, the peccant matter is more thick and viſcid; in the meaſles, more ſubtile, hot, and bilious.

Dr. *Boerhaave* conſidered the *ſmall-pox* as a *cutaneous* inflammation, joined with a *contagious* eruption; and therefore required, for the moſt part, the general remedies for the former, with thoſe that are eſteemed ſpecific in the latter. He was naturally led to ſuch a method as enabled him not only to mitigate the *ſymptoms*, and to leſſen the danger of the diſtemper, but ſometimes even to prevent any eruption, by ſubduing it on its firſt attack; and

and he doubted not but that a *variolous fever* might be obſerved by others, uſing the ſame regimen, to be ſometimes removed before it produced a *variolous eruption*.

The contagious matter of the *ſmall-pox*, being mixed with the humours, produces effects, nearly, in the following order, and method: horripilations, cold ſtiffneſs, pain in the head, neck, limbs, and back; nauſea, vomiting, acute fever, reſtleſneſs; and, in children, doſing, ſleepineſs, and epileptic fits.

It has an affinity with all other inflammatory diſeaſes: and, therefore, during the progreſs of the *ſymptoms*, *bleeding*, and repetitions thereof if neceſſary; occaſional vomiting; emollient and lenient *clyſters*; and plenty of diluting liquors; are the general means ſuppoſed to be uſeful.

Great ſweats are of dangerous conſequence in the firſt ſtage of this diſtemper, and therefore carefully to be avoided: and, indeed, in the moſt violent caſes, the ſucceſs moſt commonly depends upon the proper management at firſt, both before, and during the eruption of the puſtules, by ſupplying the patient with

plentiful draughts of *nitrous emulſion*, *orange whey*, &c. for want of which, an immoderate exaltation of the ferment increaſes the force of the morbific matter, ſo much, that the patient ſinks in the beginning of the diſeaſe; when, by reaſon of the confuſed, and irregular motion, raiſed in the blood, the matter of the diſeaſe cannot diſentangle itſelf, and hence bloody urine, and petechiæ, are the natural conſequences.

Mr. *Wilſon*, the hoſpital ſurgeon to the Engliſh army, not far from *Louvain*, ann. 1705, bled plentifully thoſe who ſeemed to be attacked with the ſymptoms of the *ſmall-pox*, and were feveriſh, or plethoric; and if attended with any pain, nauſea, or other complaint of the ſtomach, he ordered an emetic of ipecacoanha, and then gave them barley-water acidulated with *ſpirit of ſalt*, and ſweetened with ſyrup of *corn-poppy*, to be drank when thirſty. The patients were kept cool, with the doors open, all the day long. Their diet was *panada*: and, by this method, moſt of them recovered.

The great buſineſs is to keep the inflamed blood

blood within its true bounds, and at the ſame time to aſſiſt the expulſion of the morbific matter through the ſkin; and this is beſt effected by occaſional bleedings, with cooling and diluting medicines.

When the inflammation attacks the bowels, a *diarrhœa* generally enſues, for which *bleeding* ſeems to be the moſt neceſſary expedient, where the patient's ſtrength can admit of it; and, indeed, I believe, it very rarely happens, but that it may be put in practice, upon any extraordinary emergency, with much ſafety. One inſtance I may inſert for the confirmation of this opinion. I attended a young lady who had a contiguous eruption of the *ſmall-pox*. The ſixth day of the diſtemper, ſhe was ſuddenly ſurprized with a great difficulty of breathing, and in a while after, before I could be fetched to her from ſome diſtance, ſhe had a very large diſcharge by the bowels, which relieved, and, in a manner, carried off the *dyſpnœa*: but then the flux was too profluent to be borne. Wherefore a *clyſter* of milk and *diacodium* was given, to pacify the bowels; which, for a ſhort

a ſhort ſpace of time, ſeemed to have ſome good effect; but then the ſhortneſs of breath grew bad again, and the urine was deeply tinged with blood. I ordered *bleeding* in the arm, which ſoon gave her ſome relief; and the following mixture to drink a cupful of at pleaſure, viz. Briſtol water acidulated with lemon-juice, and ſweetened with ſyrup of corn-poppy. But after a while, the ſame difficulty returning, the *bleeding* was again repeated in leſſer quantity; and ſo every two or three hours, till the *dyſpnœa* was no longer a prevailing ſymptom.

It was computed that this patient loſt, in five ſeveral bleedings, within the ſpace of fourteen hours, more than a pound of blood. By theſe means, alſo, the inflammatory diarrhœa was perfectly appeaſed, and the urine no longer tinged with blood; the coction was aſſiſted, the pocks afforded a laudable ſuppuration, and the patient, though of a very delicate habit, perfectly recovered.

A *ptyaliſmus* is a regular attendant of the confluent *ſmall-pox* in adults, from the fifth or ſixth day, till after the *criſis*; and it is ſo neceſſary

neceſſary, that, if it ſtop ſuddenly, and return not for four-and-twenty hours, the patient is ſuppoſed to be in very great danger.

On a ſimilar occaſion, when bleeding could no longer be of any uſe, I have known the extraordinary effects of a *cinnabar* fumigation to have been experienced in a moſt difficult and dangerous criſis, when, from a congeſtion of humours about the neck and throat, the patient ſeemed to be in a manner ſuffocated. The experiment proved very efficacious; for the ſubtilty of the fume, by penetrating the thorax, occaſioned a ſudden fit of coughing, whereby a very great quantity of filthy viſcid phlegm was excreated, which gave a ſpeedy relief to the patient's breathing: and from the *gangrenous ſloughs* which were ſeparated, and brought off afterwards, by the uſe of this medicine, it appeared, indeed, that the muſcular parts of the throat had been reſcued from a dangerous mortification. The *ptyaliſm* was plentiful, and continued many days; till the morbid cauſe, with the aſſiſtance of repeated purging of the body, was totally extinguiſhed.

The

The Meaſles.

THE *Meaſles* is a cutaneous diſeaſe, conſiſting in a general appearance of eruptions, not tending to ſuppuration, accompanied with a fever.

This diſtemper ſeems to bear a great affinity to the *ſmall-pox*; the *ſymptoms* being in many reſpects the ſame, the cauſe nearly the ſame, and the regimen and cure not much different.

The eruptions uſually appear about the fourth day, like *flea-bites*, over the whole body; but thicker and redder, and with greater inflammation, than thoſe of the *ſmall-pox*; and vaniſh in four or ſix days after appearance, being, when at the height, not larger than pins heads.

This inflammation does not only affect the ſurface of the body, but the inner parts alſo, and particularly the lungs: hence follow a cough, and difficulty of breathing. And although the diſtemper in its nature be leſs dangerous

gerous than the ſmall-pox, and of ſhorter duration; yet it ſeizes with more violent heat, and greater anxiety, than the other does.

When *blood* is taken away in the beginning of this diſtemper, it is accounted a moſt general ſecurity to prevent the inflammation's falling upon the *lungs*, and *bowels*; and, therefore, it ought to be conſidered of, at firſt, as a principal remedy: or, if it has been neglected, it muſt ſtill be put in practice in the progreſs of the diſtemper, and repeated alſo, if there be occaſion, upon any emergency. And at the end of the diſeaſe, likewiſe, when the ſkin is growing dry, and peeling off, it will be a great error not to open a vein again; that by this means a flux of humours upon the breaſt and inteſtines, and the *ſymptoms* of a *hectic fever* and *conſumption*, may be happily prevented.

The diet ought to be the ſame as is preſcribed in the ſmall-pox; taking particular care that the body be kept lax rather than bound up, through the whole courſe of the diſtemper.

And to thoſe cooling remedies which are directed

directed in the other diſtemper, muſt be added ſuch as abate the cough, and help expectoration; particularly oily linctus, and the pectoral infuſion, of which, with the addition of a little nitre, the patient may drink liberally, and often.

Opiates, in the progreſs of this diſtemper, to quiet a cough, which, from the ſharp defluxion upon the lungs, threatens a hectic fever and conſumption, are generally uſeful.

Gentle purges are to be given at due intervals. *Aſſes milk*, *change of air*, and *exerciſe*, ſuitable to the ſtrength of the patient, are alſo neceſſary.

Tremor.

TREMOR is nearly a-kin to convulſion, wherein there is ſomething of a convulſive motion, or ſhaking, accompanying a voluntary, or natural motion.

It conſiſts in a violent agitation of the limbs, in contrary directions; owing to a deficiency of the due tone, and proper niſus of the affected parts.

Tremors have been diſtinguiſhed by *authors*, into active and paſſive. The active is that which happens in violent paſſions; as *terror*, *anger*, *joy*, &c. or in intermitting *fevers*; and is to be referred to the ſemi-convulſive motions. The paſſive is owing to a private cauſe, and is allied to the ſemi-*paralytic affections*. Hence it is accidental, and tranſitory.

The paſſive tremors of the limbs, when conſidered as a diſeaſe, are to be diſtinguiſhed from thoſe which are cauſed by external accidents, ſuch as being plunged into cold wa-

ter;

ter, and drinking ſtrong tea, or coffee; and other ſuch accidental cauſes.

Perſons ſubject to tremors of the limbs, are principally old people, in whom the vital principle is grown weak and languid; and the more the diſeaſe is confirmed, by being grown habitual, the more difficult is the cure. But if a caſe of this kind be taken in hand, as ſoon as it ſeizes the patient, and be treated in a rational manner, it is often perfectly cured. In order to this, the firſt ſtep muſt be the perfectly cleanſing the *primæ viæ*, by repeated doſes of *rhubarb*, or the extract of *black hellebore*. If any habitual evacuation has been omitted, as *bleeding*, or the like, this muſt be reſtored in the accuſtomed manner; or if any natural flux of blood, by the *hæmorrhoides*, or otherwiſe, has ſtopped, this alſo muſt be recalled by proper medicines, or by the application of *leeches*. After this, the due tone of the parts is to be reſtored by nervine medicines, as by wine impregnated with *ſerpyllum*, *lavender*, *ſaſſafras*, *guaiacum*, and the like ingredients; and, externally, by rubbing the parts with *ſpirit of caſtor*, *camphire*, *ſerpyllum*;

pyllum; and bathing them with decoctions of *tanzy*, *ſavine*, *feverfew*, &c.

The medicine commonly made uſe of in tremors, and other nervous diſtempers, is the compound ſpirit of *lavender*. The moſt ſucceſsful way of uſing it, is, by taking thirty or forty drops, twice or thice a day, dropt on loaf ſugar. It is ſuppoſed, that, by this way, the moſt ſpirituous and efficacious parts make their way by the nerves of the palate, &c. without undergoing the courſe of the circulation; as it muſt otherwiſe do, when taken in a liquid vehicle.

Spaſm.

A *Spaſm* may be either univerſal, extending itſelf over the whole body, which is a very rare caſe; or partial, occupying only ſome one part of the body: theſe are very frequent, and ſeize at times on every part, from the head to the foot.

Of the nature of the univerſal *ſpaſms*, are, 1. The *Tetanus*, which ſeizes upon the whole body, and makes it ſtiff, and rigid, in every part. 2. The *Emproſthotonos*, which bends the body forwards, ſo that the head is brought to meet the knees. 3. The *Opiſthotonos*; this inclines the whole body forcibly backwards. And, 4. the *Catalepſis*, which ſeizes the whole *ſyſtem* in a moment, and fixes it rigidly in that poſture in which it finds it; ſo that the poſition of every limb, and the very turn of the countenance, and look of the eyes, are the very ſame as when the patient was ſeized.

To

To the claſs of particular, and partial *ſpaſms*, belong, 1. Many of the *Arthritic* complaints. 2. The *Incubus*, or Night-mare, which is a *ſpaſm* of the breaſt. 3. The Convulſive *Aſthma*. 4. The *Cynic Spaſm*, which is a peculiar diſtortion of the face, reſembling the geſtures, and ſnarlings of a dog. This endures uſually many hours, and is often of very fatal conſequence, frequently terminating in an *apoplexy*, or in ſome terrible convulſions. 5. The *Riſus Sardonicus*, reſembling that of a perſon laughing, which only differs from the former, in that it is attended with an abſolute delirium, which is not the caſe in the other. 6. The *Priapiſm*, which is an involuntary, and painful erection of the penis. 7. The Spaſtic Contraction of the *Colon*, in flatulent *cholics*. 8. The fixt *Spaſms* of *Paracelſus*, which are often afflicting podagric and arthritic patients.

Spaſms in general, beſide theſe diſtinctions, are divided by authors into the ſudden, or inſtantaneous, which ſeize upon any muſcle in a moment, and keep it for a conſiderable time in a painful ſtate of contraction; and the ſlow ones.

The ſlow ones are of two kinds: 1. the muſcular and tendinous; and, 2. the fibrillary. In the firſt of theſe, the whole muſcle is affected with tenſive pains, and the limb becomes finally contracted. In the other, the ſeparate fibres of the muſcle are only affected. This is uſually the caſe in *ſpaſms*, in *arthritic* caſes, which ſeize a few fibres only at firſt, but finally faſten upon more, and extend themſelves over the whole muſcle, in which caſe the pain uſually becomes leſs.

A tenſive pain in the neck, occaſioned by ſitting, or lying, in an uneaſy poſture, uſually called a crick in the neck, is alſo to be enumerated among the partial ſpaſms: and, finally, theſe affections are not reſtrained wholly to the external parts, but often ſeize alſo upon the internal, as the œſophagus, the ſtomach, the bladder, &c.

It is a common error, to confound the word *ſpaſm* with convulſion: their difference is evident; the one being ſtationary, and immoveable; the other erratic, and flying from one part of the muſcle to another, and from one muſcle to another. The con-

vulſion

vulſion alſo uſually extends itſelf farther than the *ſpaſm*, and is greater in degree; and, finally, *the ſpaſm* is a much leſs dangerous complaint than the convulſion.

Men are much more ſubject to *ſpaſms* in general, than women; and, among them, ſuch, as are of a ſanguine and plethoric habit, are moſt of all ſubject to them.

The general cauſe of *ſpaſms* is an abundance of blood, in a body where the veſſels are ſmall; and Nature is endeavouring to throw off the load of the *plethora* from veſſels, where it is troubleſome to her, by this means; which, though an erroneous one, is therefore not without its end.

The univerſal ſpaſms are greatly the moſt dangerous, as they are frequently attended with internal inflammations; and the partial ſpaſms too often degenerate into convulſions.

If ſpaſms are very frequent in young people, they are to be ſuſpected of threatening arthritic complaints in old-age; and when perſons have been free from ſpaſms in their youth, and become ſubject to them when old, it is much to be feared that they portend *apo-*

plexies, *palſies*, and *ſuffocative catarrhs*: and in general all *ſpaſms*, as they are, in reality, no other than the incomplete attempts of Nature, to free herſelf of ſomewhat that offends her in particular parts, portend ſome worſe miſchief, when they are obſerved to return frequently, and with violence. *Spaſms* happening in acute diſeaſes, and from wounds, are always very dangerous ſymptoms, and threaten convulſions, and other miſchiefs.

The means to be uſed when the fits are off, are bleeding in any manner; by the *lancet*, by *leeches*, or by *cupping*; as may be moſt proper, in regard to the part principally affected, and other circumſtances: after this, the *primæ viæ* are to be cleanſed by purges, from all foulneſſes that may adhere to them: and, finally, ſuch medicines are to be given, as are known to attenuate the blood: and, with all this, gentle exerciſe is of great ſervice. In the time of the fit, lenient, and paregoric medicines; of this kind are *ſuccinum*, *ſpirit of hartſhorn*, &c. To theſe are to be added the *acrid vegetables*, ſuch as the more *temperate carminatives*; and the emulſive diluent

luent medicines, *with nitre* and *cinnabar*. This laſt is famous alone in all theſe caſes, and indeed in all emotions of the blood; but neither this, nor any of the others, will take effect till after *bleeding*, if the *ſpaſm* be violent. The *volatile alkalies* alſo ſucceed beſt when mixed with a fixed one; ſuch as the *ſpirit of hartſhorn* with the *tincture of ſalt of tartar*, or of *antimony*.

Convulſion.

THIS is a continual involuntary contraction of ſome parts of the body, otherwiſe accuſtomed to move according to the direction of the will.

It owes its *origin* to a contraction of the muſcles of the part, occaſioned by a too copious and violent influx of the *nervous juice:* of which there may be infinite cauſes in the blood, arteries, meninges, brain, nerves, muſcles, cranium, &c.

The uſual evacuations, and medicines proper for the cure of convulſions, are *phlebotomy*, *emetics*, *cathartics*, *epiſpaſtics*, and proper *cephalics:* as *volatile aromatic ſpirit*, *ſpirit of lavender*, *ſpirit of hartſhorn*, *tincture of caſtor*, *cinnabar of antimony*, *caſſummunair root*, *valerian root*, *volatile ſalt of amber*, &c. given in different forms.

Convulſions in children are cauſed by ſeveral different means, and therefore require a dif-

a different treatment. If they ariſe from a repreſſion of ſweats, the common alexipharmics are to be given; and, in the intermediate times, ſmall doſes of *mercurius dulcis*. If they are owing to acrimonious humours in the bowels, they are to be cured by gentle doſes of *ſyrup of rhubarb*, and powders of *calcined cryſtal*, and other abſorbents. When they are cauſed by abundant ſeroſities, *valerian roots*, and *aurum fulminans*, are greatly recommended. When they are *epileptic*, and return very frequently, *cinnabar* is to be given frequently in powders; and when they are owing to worms, *mercurius dulcis* is the beſt of all remedies.

Chorea

Chorea Sancti Viti.

DR. *Sydenham* properly obſerves this diſtemper to be an univerſal convulſion, which ſometimes continues ſeveral weeks, nay months, without intermiſſion.

Thoſe affected with this diſorder, are continually in ſtrange motions, with their head, legs, and arms; ſo that they are unfit to feed themſelves.

It differs from other convulſions, in that the motions are not painful; nor are any of the extremities, or parts, forcibly contracted, or extended for any time.

Boys, and girls, are moſt ſubject to this diſeaſe; and that, from ten years of age, to puberty: though the latter oftener than the former.

It ſometimes precedes the firſt eruption of the *menſes*; in which caſe, proper cathartics, with *calomel*, and deobſtruents, are generally uſed;

uſed; otherwiſe evacuations, and *anti-epileptics*, as in other *nervous diſtempers*; and afterwards the *cold bath*, *bark*, and *chalybeate medicines*.

Hiccough

Hiccough

THIS is a ſudden, irregular inſpiration, wherein the ſtomach, and the parts contained in the lower venter, are impelled downwards.

The *hiccough* is not immediately a diſorder of the ſtomach, as it is uſually imagined; but a convulſive motion of the diaphragm, whereby that muſcle retiring impetuouſly downwards, impels the parts beneath it.

It is occaſioned by ſharp humours; a too great plenitude of the ſtomach; a bit of any thing ſtopped at its upper orifice; or, in the general, by any thing capable of irritating the nerves of the diaphragm.

The remedy for the *hiccough*, according to *Hippocrates*, is to fetch the breath very long; or even to ſtop the breath for ſome time. A *ſneezing* happening upon a *hiccough*, generally cures it; the *diaphragm*, ſhook by the violent

violent expiration, being apt to throw off what before irritated it.

People ſubject to habitual *hiccoughs*, will find relief, by uſually wearing a belt round the *abdomen*; and ſuch ſhould always uſe moderate exerciſe, and avoid large draughts of cold liquors.

Carminatives, *vinegar*, *muſk*, and *laudanum*, have been ſucceſsfully uſed, for remedying this diſorder.

Sneezing.

Sneezing.

THIS is a convulſive motion of the muſcles of the breaſt, uſed in expiration; wherein, after ſuſpending the inſpiration begun, the air is repelled, from the mouth and noſe, with a momentary violence and noiſe.

The cauſe is an irritation of the upper membrane of the noſe, which communicates with the intercoſtal nerve, by means of the twigs that it detaches to it,

This irritation is performed either externally, by ſtrong ſmells, as *marjoram*, *roſes*, &c. or by duſt floating in the air, and taken by inſpiration; or by ſharp, pungent medicines, as *creſſes*, and other *ſternutatories*, which vellicate the membrane of the noſe: or, internally, by the acrimony of the *lympha*, or *mucus*, which naturally moiſtens the *membrane*.

The matters caſt forth by ſneezing, come primarily from the noſe and throat; the *pituitary*

tuitary membrane continually exuding a *mucus* thither: and, ſecondarily, from the breaſt, the *trachea*, and the *bronchia* of the lungs.

Too much ſneezing is a diſeaſe of the convulſive kind, and therefore in general requires the ſame cure. Lenients, and mucilages, are to be drawn up into the noſtrils.

Sneezing coming upon a *hiccough*, puts an end to it; becauſe it is a *ſpaſmodic* motion contrary to it.

Convulſive

Convulſive or Hooping Cough.

THIS diſorder is of the *ſpaſmodic* kind, and is diſtinguiſhed from other coughs, by a ſingular *hooping*, and *noiſe*. It is difficult to aſcertain what parts are principally affected, whether the *lungs*, *diaphragm*, or *ſtomach*; they are, perhaps, in ſome meaſure ſo, by *ſympathy* of parts: but it ſhould ſeem that the ſtomach is principally affected, from the relief the patient finds from vomiting up, at the end of the fit, a quantity of roapy, heavy, viſcid *phlegm*, or inſpiſſated glandular liquor; which could not poſſibly be ſo frequently ejected from the lungs of children, or be accumulated there in ſuch quantities.

The moſt ſucceſsful method of treating this diſorder, ſeems alſo to favour this opinion; as thoſe medicines that attenuate the viſcid *phlegm*, diſcharge it from the ſtomach, and ſtrengthen the *organ* at the ſame time, are found to give the greateſt relief, and ſhorten the duration of this tedious malady.

Gentle

Gentle vomits are found particularly uſeful, and ſhould be given once in two or three days; either the *ipecacoanha wine*, or, which has ſucceeded beſt with ſome, the *white vitriol*. A few grains of *rhubarb*, or elſe a milk clyſter, with a dram or two of ſoft *ſoap* diſſolved, ſhould alſo occaſionally be given, to carry off the offending cauſe by the bowels: and the *bark* ſhould be given in decoction, or ſubſtance, three times a day, to ſtrengthen the ſtomach.

When the diſorder is attended with *fever*, both bleeding, and bliſters may be neceſſary; and, when the cough and *ſpaſms* are violent, twenty, or thirty drops of *paregoric elixir* may occaſionally be taken; or two or three ſpoonfuls of a mixture prepared with ſix ounces of *muſk julep*, half an ounce of *paregoric elixir*, and a dram or two of *tincture of valerian*: an ammoniac ſolution may be given alſo, with caſtor, by ſpoonfuls, for this purpoſe.

Dr. *Fothergill* recommends the following *antimonial* compoſition, as a uſeful medicine in this diſorder: viz. half a dram of powder of

crab's-claws, and two grains of *emetic tartar*, rubbed together. One grain, one and a half, or two grains of this, may be added to five or ſix of any *teſtaceous powder*, and given in a ſmall ſpoonful of milk and water, in the fore-noon, between breakfaſt and dinner, to a child of a year old.

If the quantity does not prove ſufficient to excite vomiting, it ſhould be increaſed next day, to ſuch a doſe as will produce this effect; and repeated about the ſame hour at night. When the fever is vehement, half the former doſe of *antimonial* powder may be given with a few grains of *nitre*, or the following *fever* powder, viz. *calc. antimon. non ablut. pulv. contray. comp. nitr.* $\overline{aa}$ *pt. æq. M.*

This generally procures an agreeable ſweat, and abates the fever; but, if it fails to procure a ſtool or two daily, a proper quantity of *magneſia* may be given at bed-time with the antimonial powder.

When the cough decreaſes, and every other ſymptom abates, the powder may be taken only for two days together, and omitted on the third. Every other day will then ſuffice; and

and then only once, or twice a week, till the cough is wholly gone.

During this proceſs, *aſſes* milk is directed; and to eat ſparingly of the lighteſt meats, broth likewiſe, and milk in any ſhape. Quantity is ſtrictly enjoined to be regarded; for the more, and oftener, the ſtomach is filled to the leaſt degree of oppreſſion, the longer the diſeaſe continues, and with the greater violence.

Convulſive Aſthma.

THIS diſeaſe is a violent convulſive compreſſion of the muſcles of the breaſt, in which Nature's efforts ſeem to be the relieving of herſelf from the load of a *plethora*, by a ſpitting of *blood*, though ſhe fails in the attempt.

The *convulſive aſthma* reſembles the *incubus* in many particulars, though it never ſeizes any body, but when awake; whereas the other uſually attacks people between ſleep and waking: and this is a much more laſting complaint, and more frequent, in the return of its *paroxyſms*, than the other. The incubus alſo prevents reſpiration, in ſo violent a degree, that the perſon can form no articulate ſound; but the *convulſive aſthma* ſuffers a much more free reſpiration, and the uſe of the voice. *The incubus is accounted a diſeaſe of very little danger; but this, on the contrary, is a very dangerous, and often fatal diſorder.*

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It is attended with a great ſhortneſs of breath, which differs from the *ſuffocative catarrh* only in this, that it is ſomewhat leſs violent, and not attended with that terrible ſenſation of a ſtuffing up of the breaſt: this is accompanied with a numbneſs of the limbs, and a general laſſitude of the whole body; there is a violent compreſſion felt in the breaſt, and about the ſhoulders, with a great palpitation of the heart. The face is red in ſome parts, and ſeems tumid, and the temporal arteries are diſtended. The bowels uſually are coſtive, and there is a great dimneſs often in the eyes, and ſometimes an alienation of the mind. Theſe ſymptoms uſually come on in the evening, and laſt an hour or two: often, however, the fits are of much longer duration; and ſometimes they obſerve regular periods, at different diſtances of time.

Thoſe of *plethoric* habits are much more ſubject, than any other people, to this diſeaſe. It does not often ſeize young perſons, except in conſequence of other diſeaſes; and, in that caſe, it uſually is a very bad omen. It is moſt common to people of a middle age,

and returns frequently, by fits, for many years together; and ſometimes it is more violent, and takes them off in a very little time. People often fall into this diſeaſe, from having been uſed to periodic *bleedings*, or *cuppings*, and neglecting them afterwards; and thoſe who change a buſy, or laborious life, for an idle, and ſedentary one, often fall into it; as do thoſe, who have had the gout thrown back by improper medicines. Women alſo ſometimes fall into it from ſuppreſſions, or imminutions of the *menſes*; and men of *hypochondriac* habits, from ſuppreſſions of habitual evacuations of blood from the *hæmorrcidal* veins. The cauſes of this diſeaſe are very various; and it is ſometimes an idiopathic, ſometimes a ſymptomatic complaint: it very often attends malignant fevers, and arthritic caſes; and joins itſelf with other diſtemperatures of the breaſt.

This, though not immediately deſtructive, is often a very dangerous complaint; and in a ſhorter, or longer time, proves fatal to the patient. In middle-aged people, it uſually brings

brings on acute fevers, or ſpitting of blood; and in old people, *palſies*, *apoplexies*, or *ſuffocative catarrhs*. It rarely remains *in ſtatu quo*.

In the time of the fit, a *clyſter* is to be immediately given; and bleeding to be ordered, unleſs there is a contra-indication: after which the emotion of the blood is to be allayed by nitroſe and cinnaberine powders; with theſe the gentle diaphoretics may be joined, eſpecially in caſe of fever attending it, which very frequently happens. Where the caſe is very urgent, a ſmall doſe of ſtorax pill may be added to the powder, to be taken at night. Externally, *ſpirit of wine* and *camphor* may be rubbed on the breaſt and ſhoulders, eſpecially where the patient has been uſed to cupping, and has neglected it; rubbing the ſhoulders with a flannel often has a good effect alſo; and fumigations of *amber*, *ſtorax*, and *maſtich*, &c. may be uſed. When the fit is off, the patient ſhould uſe frequent waſhing the feet in warm water, and ſhould be always blooded in the foot, in ſpring and fall: he ſhould alſo take gentle purges, at thoſe times.

And if the neglect of habitual cuppings, or ſuppreſſions of the *hæmorrhoids*, or menſes, have concurred, great care is to be taken to bring all back to their old ſtate again, otherwiſe no radical cure can be expected. Finally, a mixture of *ſpirit of hartſhorn*, and *tincture of ſalt of tartar*, ſhould be given, to promote an equal diſtribution of the blood to all parts of the body.

Suf-

Suffocative Catarrh.

THIS diſeaſe conſiſts in a copious eruption of a *ſerous*, and *mucous* humour, into the veſicles of the *lungs*; which takes its origin from a ſudden congeſtion of humours about the breaſt; and a flaccid, and weak ſtate of the breaſt and lungs.

This diſeaſe is not to be confounded with the *ſpaſtic aſthma*, nor with a moiſt cough, treated injudiciouſly with *expectorants*, and *opiates*; nor with that ſudden oppreſſion of the breaſt, which is brought on by the ſtriking back of *rheumatic* humours, or cutaneous *exanthemata*; or the ſtopping the diſcharge of old *ulcers*: all theſe, though they have ſomething of the general appearance of the ſuffocative *catarrh*, and are therefore miſtaken for it by the leſs judicious, yet differ greatly, and eſſentially from it, in ſeveral points. Another diſeaſe, with which it is alſo confounded, is that *aſthmatic* anxiety, which attends young

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and plethoric perſons, who are unhappily labouring under a latent *ſcirrhus*, or *vomica* of the *lungs*. The ſuffocative catarrh differs as widely from this, as from any of the others; but as the cauſe of this is ſeldom gueſſed at firſt, it is liable to miſconſtructions. Others have confounded this diſeaſe with a convulſive *aſthma*. Theſe diſtempers are, in a great meaſure, to be diſtinguiſhed, by the habit of body of the perſons afflicted with them; plethoric perſons, who abound in rich *blood*, being very ſeldom ſubject to this diſeaſe, though frequently to the convulſive aſthma. They are alſo diſtinguiſhed from the abundant afflux of matter in the ſuffocative *catarrh*, and by there being none in the convulſive aſthma. In the *catarrh* of this kind, there is a relaxation of the tone of the muſcles of the breaſt; but, on the contrary, in this kind of *aſthma*, they are continually contracted into convulſions: and hence there is, in this caſe, rather an actual preſſure, and cohibition of reſpiration, than an impotence of it; which is truly the caſe in a ſuffocative *catarrh*. In this caſe alſo there is a remarkable loſs of ſtrength;

ſtrength; whereas, in the convulſive *aſthma*, there are violent efforts, and ſtrong palpitations of the heart. Some have alſo buſied themſelves, in determining the differences between a *ſerous apoplexy*, and a ſuffocative *catarrh*; but this is not neceſſary, ſince they very often concur, and make but one diſeaſe: but when the *ſerous apoplexy* comes alone, it is known, by having been preſaged by diſorders of the head, redneſs, and lippitude of the eyes, a dull and heavy *cephalea*; and a foaming, or voiding of frothy matter by the mouth.

This diſeaſe always ſeizes the patient at once, without any previous notice: his breath becomes extremely difficult, and the fulneſs of the breaſt is eaſily diſtinguiſhed by a ſound, or rattling of a frothy matter, at the time of drawing the breath. There is an immediate debility, and loſs of ſtrength, and ſpirits, as the patient calls it; but there is, in reality, a *ſpaſmodic* tenſion: there follows this a reſtleſsneſs, ſo that the patient cannot ſuffer his limbs to lie a minute in the ſame poſture or place; and there is always a deſpondency of

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the mind, and the patient thinks he is certainly going to die. There is uſually either no *cough* at all, or, at the moſt, only a ſlight, and inſufficient one, and the ſtrength to cough is wanting. The breaſt, and even the ribs, are ſenſibly affected by this diſeaſe, and the eyes look red, and tumid.

Scarce any one is ſeized with this diſeaſe, except ſuch as are troubled with habitual *catarrhs*; or have, for many years, been ſubject to defluxions from the head, upon the *fauces*, and *lungs*: and the perſons moſt of all ſubject to it, are old men of a *phlegmatic*, and *plethoric habit*; or are of that kind of temperament, which ſubjects people, at other times, to *palſies*, and *apoplexies*. Lean perſons are ſcarce ever afflicted with this diſorder, unleſs they have long laboured under a violent cough, or have ulcerous diſorders in their *lungs*. Young people are alſo very little ſubject to this diſeaſe, except ſuch only as are very corpulent, and *phlegmatic*; and already habituated to large defluxions of this kind. Infants, alſo, which are very fat, and have had a ſudden ſuppreſſion of their natural ſweats, ſometimes

times fall into this diſeaſe; but with them it is not ſo violent.

The occaſional cauſes of this diſeaſe are ſeen in what has been already obſerved; but its true *origin* is to be ſought for in the head, not in the breaſt, or lungs: yet, though it is eaſy to ſee, what may occaſion a congeſtion of *ſerous humours* in the upper parts, it is difficult to ſay how the *lungs* become rendered fit to receive it all at once, in this dangerous manner. It is accidentally brought on in children, as well by the repulſion of their cutaneous eruptions, as by the ſtopping of their ſweats; and in grown people, from the omiſſion of habitual *bleedings*, from coldneſs and dampneſs of the air, from frequent *drunkenneſs*, and from an injudicious treatment of cutaneous humours, and particularly from drying up diſcharges of *rheum* from the *eyes*.

It is a very terrible diſeaſe, and very ſpeedily proves fatal; for the patient, if not relieved, uſually dies in twenty four hours. Sometimes it degenerates into a *fever*, and the patient ſeems cured by the change; but the remedy, in this caſe, proves as bad as the diſeaſe:

diſeaſe: for the *fever* generally becomes a ſettled *hectic*, attended with great difficulty of breathing; and, finally, carries off the patient, after making him endure, for ſome time, a life of terrible pain. Sometimes it goes off into an *aſthmatic* laxity of the breaſt, attended with a *cough*, and a continual diſcharge of mucous matter by ſpitting; and, ſometimes, into an abſolutely *cachectic* flaccidity of the body: and in general, if not carefully treated from the beginning, it either entails ſome of theſe diſorders upon the patient, or elſe leaves him ſo poor and weak a conſtitution, that he becomes eaſily liable to all the diſorders of this kind, from the ſlighteſt occaſions.

Grown perſons are ſooner taken off by this diſeaſe than young children; with whom it ſometimes continues above a week, or a fortnight. In old people, the fatal event of this diſeaſe is ſo ſudden, that it is often dubious, whether it were this diſtemper, or an *apoplexy*; and in general it ſeems probable, that many of the perſons, ſaid to die of *apoplexies*, die,

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in reality, of the violent attacks of this terrible diſeaſe.

In the time of the fit, a ſtimulating *clyſter* muſt be given, made of a decoction of *marjoram*, and other warm herbs, with *colocynth*, in order to abate the infarction of the breaſt, and give a new courſe to the matter that might add to it; and when there appears to be a *plethora* beſides, a vein muſt be immediately opened after the clyſter. After this, if the ſtomach be nauſeating, and uneaſy, an *emetic* is to be given, with a grain or two of *gamboge*, to carry off the humour by the bowels: and all this time there may be *frictions* and *ſinapiſms* applied to the lower extremities; and finally, to attenuate and diſcuſs the mucous *ſtaſis*, gentle *alexipharmics*, and *ſudorifics*, ſuch as the eſſence of *ſuccinum*, tincture of *ſalt of tartar*, and *tartarized tincture of antimony*; and all *nitrous* medicines are alſo of the greateſt uſe to prepare the humours for evacuation.

As ſoon as the fit is over, corroborants are to be given, and all ſuch things as can reſtore the parts to their due tone: of this number

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are the milder *chalybeates* and the *bark*; and, with theſe, *analeptics* are to be given; to recruit the fleſh, and ſtrength; ſuch as emulſions, *aſſes milk*, and a proper diet: and, for ſuch as are uſed to wine, the richeſt wines in moderate quantities, and the higheſt foods will be of ſervice. But if there be perceived a *fever*, after the other ſymptoms are gone off, this muſt be cured by gentle *alexipharmics*, and by powders of *nitre* and the abſorbents: and if a chronic indiſpoſition ſeems left behind, then the gums, which act as diſcutients, are to be given for ſome time; ſuch as the *ammoniacum*, and *ſagapenum*; and a warm regimen is to be recommended. And finally, to prevent a return of the diſeaſe, bleeding will be neceſſary in the *ſpring* and *autumn*, and purging medicines taken in the intermediate times: the patient muſt alſo avoid all violent paſſions of the mind, and muſt never ſleep in a damp *air*. We are not to fear bleeding in the time of the fit, becauſe of the patient's complaining of want of ſtrength: for as the danger of ſuffocation is ſudden, and imminent, it muſt be ſuddenly removed; and, when

when that is done, the patient's ſtrength will return in good time: the ſame is alſo to be alleged in favour of the violent *vomits*. In people of a phlegmatic habit, bleeding is not neceſſary, nor proper; but in theſe caſes a vomit is ſafe and right, and uſually gives relief; eſpecially if the patient have eaten heartily ſome little time before.

Palſy.

A DEFECT of muſcular motion, inſuperable by the will, or vital power, in any part, or limb, is called a *Palſy*; and when the ſenſation, or feeling, is gone at the ſame time, it is called a dead palſy. Sometimes it remains in a ſmall degree, with a numbneſs, and a ſlight pricking ſenſation.

Its proximate cauſe is, whatever obſtructs the animal ſpirits, or the arterial fluid, from paſſing into the paralytic muſcle; and every other cauſe that creates an *apoplexy*.

Its more remote cauſes are very numerous: as a pituitous, thick, glutinous, and ſluggiſh nature of the fluids; or a compreſſion on the brain and nerves, ſo that the blood and ſpirits cannot flow freely through them: and a ſuppreſſion of all uſual evacuations.

The ſteams of *arſenic*, *antimony*, *mercury*, *quick-lime*, *lead*, and other poiſons, are productive alſo of many *paralytic* diſorders.

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This diſtemper, therefore, ariſing from ſo great a number of different cauſes, which conſequently produce many different effects, is adjudged, by the degree of magnitude, and the difference of the part affected, to be more, or leſs dangerous; curable, or incurable.

A *palſy* of the heart, lungs, muſcles of the throat, and thoſe ſerving to reſpiration, kills very ſoon: of the ſtomach, inteſtines, and bladder, very dangerous. That of the muſcles of the face is eaſily changeable to an *apoplexy*: *paraplegia* is alſo the forerunner of an *apoplexy*; and *hemiplegia* is a-kin to it, and frequently terminates in the ſame diſtemper. That which is accompanied with a coldneſs and waſting of the part, is ſeldom curable; and that which comes with a ſtrong convulſion, and great heat of the oppoſite ſide, is bad alſo.

Nature has cured this diſeaſe, by attenuating and diſſipating means: by looſening the impacted matter, with the help of a great fever; ſtirring it, by a convulſive motion of the part, and carrying it off by a profluent diarrhœa.

The cure conſiſts in the removal of the cauſe which obſtructs the function of the nerves, and arteries; and in reſtoring the free influx, and reflux.

This is to be attempted by warm attenuant, and diſcutient remedies; with a ſtimulant force, to create a trembling of the *nerves*, and raiſe a beneficial fever, ſufficient to ſtir up great motion, and ſweat.

This is to be affected by *aromatic*, *cephalic*, and *nervine* medicines: dry *friction*, *cupping-glaſſes*, *bliſtering*, &c. and copious ſtools, procured by means of large doſes of *mercurius dulcis*.

Care muſt be taken that all topical remedies be applied, to the ſeat of the cauſe, as near as poſſible; which the knowledge of the muſcles and nerves, will eaſily demonſtrate.

Paralytics, conſidered in a chronical ſtate, require a different method of treatment: inſtead of bliſters, iſſues in the nape of the neck, made with *cauſtics* above the *ſcapulæ*; warm, and moderate cathartics; aromatic ſtrengtheners, with *chalybeates*; and the help of *Bath waters*, *friction*, and *ſea-bathing*; added to a regi-

a regimen of diet, conſiſting of *milk*, *white meats*, and *vegetables*; with proper exerciſes, and ſocial recreations; have been found truly beneficial to many people languiſhing under this diſtemper, by reſtoring health, and ſtrength, ſufficient to make life tolerable, and not uncomfortable, for many years.

De Haen boldly mixes *nepenthe* with purgatives, whenever they are indicated; that, by relaxing and appeaſing the too contracted, and irritated nerves, they may do their office more eaſily.

Epilepſy.

THIS is a convulſion either of the whole body, or of ſome of its parts; attended with a deprivation of the ſenſes, and underſtanding; and returning, from time to time, by paroxyſms.

The patient ſeized herewith, falls inſtantly, and ſuddenly down; or rather, as it were, throws, and precipitates himſelf violently on the ground. When down, he grinds his teeth, foams at the mouth, and frequently ſhakes his head; his arms, legs, neck, back, &c. either becoming rigid, or variouſly diſtorted; and as all the parts are in a violent contraction, there is frequently an involuntary flux of urine, ſemen, and fecal matter. After ſome time, he returns to himſelf; only retaining a head-ach, heavineſs, wearineſs of the limbs, &c.

The cauſe of this diſeaſe, *Boerhaave* attributes to too much action of the brain on the motory

motory nerves, and none on the ſenſitive ones. Some are pleaſed to account for it, from the abundance of ſharp humours mixing with the *animal ſpirits*, and giving them extraordinary and irregular motions, and directions; whence ariſes its diſtinction from a ſyncope, and apoplexy, which take away all motion, as well as ſenſe.

The *epilepſy* is either *idiopathic*, or *ſympathetic*: it is *idiopathic*, when it ariſes merely from a diſorder of the brain, or ſpirits; and *ſympathetic*, when it is preceded by ſome other diſeaſe, which brings it on.

This diſtemper ſometimes hangs many years on a perſon, without much danger; though, when its *paroxyſms* return faſt, it renders the patient more or leſs *paralytic*, *delirious*, or *ſtupid*. In young people, there are hopes of its going off about the time of puberty. *Hippocrates* obſerves, that, when it ſeizes a perſon after five-and-twenty years of age, it laſts for life; but this does not always hold.

The *epilepſy* owes its origin to ſo many different cauſes, that it is extremely difficult to find out the method of cure; and the ſame

remedy which ſucceeds in one caſe, often fails in another. After proper evacuations, however, by bleeding, vomits, and purges, the principal remedies to be depended upon, are the *bark*, and freſh *valerian root*, taken to the quantity of a dram, twice a day, for three months; with the cold bath, and exerciſe; and then to be repeated three or four days before the *lunations*. The *cardamine* has been often given to advantage, to the quantity of a dram, three or four times a day: *muſk* and *cinnabar* are extolled by many, and, from ten to twenty grains of each, may be taken morning and night, for ſome weeks. Three or four grains of *aſa fœtida*, or the *gum pill*, given for ſeveral nights, going to bed, have been very ſerviceable; and the following tincture, given to a dram, or more, has been an approved medicine:

℞ As. fœt. ʒij.
Fulig. è lign. duræ et ſplendent. ʒiij.
Spt. Vin. Gallic. ℔ij. Sæpe agitando f.
Tinctura.

In all diſorders of the head, great attention

tion ſhould be paid to the ſtomach; which, being loaded with viſcid, or bilious matter, frequently contributes thereto. When this is the caſe, medicines are in vain directed, till the ſtomach has been properly cleanſed, by repeated vomits; and afterward ſtrengthened with *elixir of vitriol*, and the *hiera picra* tincture, taken twice a week, to the quantity of four, or ſix ſpoonfuls.

The fit is ſaid to be prevented, by ſtretching the *jaws* to the utmoſt, by means of a piece of metal, or ſtrong body, introduced between the teeth: this ſhould be done as ſoon as the fit approaches, before the jaws are locked. A ſquare piece of iron, or ſteel, of ſuch dimenſions as are adapted to the wideſt diſtention of the *jaws*, and fitted to a handle, would be convenient for this purpoſe; and, as ſuch ſort of application has been attended with ſucceſs, and is eaſily put in practice, it is certainly worth the trial.

After all, we find, indeed, from daily experience, and alſo from examining the records of medicine, that the cures that have been made, have moſtly been performed either

either by change of *air*, ſuch as going from a cold to a hot climate; by ſome remarkable change of life, or ſome accidental diſorder, or by iſſues or drains, or by the removal of ſome acrid, or irritating ſubſtance; in ſhort, that thoſe medicines called ſpecifics, have in general but little ſhare in the cure.

To recover a perſon in a fit, *tobacco*-ſmoak, or that of burnt *feathers*, is recommended. *Barbette*, above all things, directs the flowers, and ſpirit of *ſal ammoniac* againſt this diſeaſe: *Crato*, native *cinnabar*: Sir *John Colbatch* has an expreſs treatiſe on the *miſletoe* of the oak, to ſhew it as ſpecific in this diſeaſe.

M. Poupart, from the diſſection of an *epileptic* perſon, wherein, immediately under the *dura mater*, was found a deal of white, thick, viſcid pituita, glued, and, as it were, incorporated with the membrane, thinks, that this might be the cauſe of the diſeaſe; the exceſſive quantity of ſuch thick *lympha*, loading the brain, and obſtructing the neceſſary motions. The firſt cauſe, he judges, might be the ſpongineſs of the *dura mater*, which imbibed the ſeroſities of the brain.

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He adds, that he knew an *epileptic* perſon, who, upon the firſt approach of his diſorder, rubbed his forehead with his hand, and bent his head as far backward as he could, reſting it againſt a wall; and by that means ſecured himſelf againſt the convulſion. It is probable, that, by this, he gave a motion to the *lympha*, and drove it from the place which before it diſturbed.

Sal vitrioli alone, given to a patient, from three grains to half a ſcruple, twice-a-day, has proved a cure for this diſtemper, without producing any ill effect.

In a *ſympathetic epilepſy*, the diſeaſe which is the cauſe of it, muſt principally be had regard to; for on that the curative means are chiefly to be grounded.

Spaſmus

Spaſmus Cynicus.

THE *Cynic Spaſm* is a ſort of convulſion, whereby the patient is brought to imitate the geſtures, ſnarlings, howlings, &c. of a dog.

Dr. *Freind*, in the *Philoſophical Tranſactions*, gives an account of a very extraordinary ſpaſmus of this kind, wherewith two families, at *Blackthorn*, in *Oxfordſhire*, were ſeized.

The novelty of the thing drew abundance of viſitors to the village; and, among the reſt, Dr. *Willis*, who, a good while before he reached the place, heard a terrible noiſe of barking and howling. Upon his entering the houſe, he was ſaluted by five girls, bawling, and anſwering each other by turns, with violent motions of the head. In their faces there was no convulſion ſeen, beſide cynic *diſtortions*, and *oſcillations* of the mouth: their pulſe was pretty regular; their noiſe

was

was rather like that of the howling, than of the barking of dogs; only that its returns were more frequent, with deep ſighings between.

The *ſpaſmus* had ſeized them all equally; whereof the youngeſt was but ſix, and the eldeſt fifteen years of age: at intervals, they had their reaſon, and ſenſes, entire; but not long, ere one of them returning to her yelling, ſet on the reſt; till at length, all fainting, they fell, like *epileptics*, on a bed laid in the middle of the room to receive them.

A little while, they would lie quietly, and decently together; but, upon a new *orgaſm* of the ſpirits, they began to beat, and bruiſe each other. Two of the youngeſt awaked, while the *Doctor* ſtaid, and left their ſiſters on the bed; but the ſpaſmus ſoon had hold on them again.

In *July*, 1700. Dr. *Freind* himſelf viſited another family, in the ſame village; where a boy, and three girls, had been ſeized ten weeks, without any apparent preceding cauſe. A girl had it firſt; and the reſt, as the mother informed him, were ſo ſtruck with their ſiſter's diſorder, that they too were ſeized.

ſeized. At his arrival, they were all at play, very briſkly, and unconcernedly before the doors: at length the eldeſt girl, about fourteen years of age, was ſeized as uſual.

The only ſymptom of its approach, was a ſwelling of the ſtomach; which riſing gradually up to the throat, ſet the muſcles of the larynx, and the head, upon their uſual convulſions. This riſing was a certain ſymptom of an approaching *paroxyſm* in them all; and if they endeavoured to ſtop it, it burſt out with the greater violence, and held the longer.

The noiſe they made was inceſſant, and diſagreeable; yet not ſo much like the barking and howling of dogs, as had been given out, as a quaint kind of a ſong, conſiſting of three notes, or tones, repeated twice over, and cloſed by deep ſighs, &c. accompanied with extraordinary geſtures, and nutations of the head.

This diſeaſe the *Doctor* takes to be natural, and to riſe from the common cauſe of all convulſions, viz. from the animal ſpirits growing unruly in the nerves, and driving the muſcles

muſcles into various contractions, according to the circumſtances of the indiſpoſition.

The *ſpaſmus cynicus*, and *riſus ſardonicus*, are ſpaſmodic affections of the nerves; and are to be removed by *antiſpaſmodic medicines*, with a diſcreet uſe of *opium*.

Ephialtes,

Ephialtes, or Incubus.

THIS diſeaſe is an oppreſſion of the breaſt, ſo very violent, that the patient can neither ſpeak nor breathe. It conſiſts in a ſpaſmatic contraction of the muſcles of the breaſt, uſually happening in the night-time, attended with painful reſpiration, and great anxiety.

This diſtemper does not ariſe, as it was antiently imagined, from groſs vapours filling the ventricles of the brain, but chiefly from too great repletion of the ſtomach, which hinders the motion of the *diaphragm*; and, of conſequence, the dilatation of the breaſt, neceſſary to reſpiration.

In this diſtemper the ſenſes are not quite loſt, but they are drowned, and aſtoniſhed; as is alſo the underſtanding, and imagination; ſo that the perſon ſeems to think ſome huge weight is thrown upon him, and ready to ſtrangle him: and this is attended with ſo violent

violent a cohibition of reſpiration, that he becomes unable to move any part of his body, or to utter any diſtinct, or articulate ſound. The whole complaint goes off, as ſoon as any one limb is moved; but there is often an univerſal laſſitude left behind it, which remains for ſome ſpace of time. This diſorder generally attacks people in the night-time, in a ſort of middle ſtate, between ſleep and waking.

Thoſe of plethoric habits, are moſt ſubject to fall into this diſeaſe; and, among them, ſuch particularly as have a great thickneſs of blood. Perſons who are ſubject to *hypochondriacal* complaints, and to diſorders of the *ſpleen*, are alſo much afflicted with it; and it is uſually brought on by eating large ſuppers, and afterwards ſleeping upon the back.

The cauſes of this malady ariſe from a ſtagnation of the blood, in plethoric habits, where it is thick about the vena porta; which Nature is endeavouring to throw off, by means of thoſe ſpaſmodic motions which conſtitute the diſeaſe: and very often crudities of the

primæ viæ become additional cauſes, and exaſperate the complaint.

The preſſure of the *cerebrum*, on the *cerebellum*; and that of the full ſtomach, on the deſcending trunk of the *aorta*; ſeem, alſo, to be concerned in this manner: for neither of them can happen, without affecting the nerves that paſs to the muſcles of reſpiration. Without ſuppoſing one of theſe, it will be hard to aſſign a reaſon, why perſons ſhould be rather affected when lying on the back, than in any other poſture.

Though this diſorder has been commonly looked upon, as a trifling complaint; and uſually left to go off of itſelf, or has been cured only by bleeding; yet it is much to be ſuſpected, that many of thoſe people, who have been found dead in their beds, actually died of it: and we have it warranted by *Cælius Aurelianus*, that it had killed many people; and alſo by *Symmachus*, that there was a contagious, and epidemic *ephialtes*, at *Rome*, which deſtroyed numbers, like the *plague*.

When

When this diſorder returns ſo often, as to occaſion the patient to call in the aſſiſtance of a phyſician; the method is, to give gentle purges three or four times, with the digeſtive medicines, ſuch as *gum ammoniacum*, or *tartarum vitriolatum*, on the intermediate days: after this, bleeding in the foot is proper; and then powders of *nitre* and *cinnabar*, uſually compleat the cure. If they fail, the common method in *hypochondriac* caſes, is to be uſed. When it happens from crudities in the *primæ viæ*, and the ſtomach is principally affected, a gentle vomit alone will perform the cure.

To prevent returns, the patients muſt accuſtom themſelves to lie on one, or the other ſide; never on the back.

Catalepſis.

PERSONS ſeized with this diſtemper remain ſtiff, as if they were frozen; and continue in the ſame poſture they were, when ſeized with it; with their eyes open, but ſpeechleſs, and ſenſeleſs; without ſeeing, or underſtanding.

Boerhaave takes the immediate cauſe of this malady to be an immobility of the common ſenſory; whence comes an abſolute ſtagnation of the blood in the brain, and a ceſſation of all its functions, as well as thoſe depending thereon; the *muſcles* alone remaining in their firſt tenſion; and reſpiration, and the pulſe preſerved, though generally weak.

Upon diſſection, the *arteries* and *veins* of the *cerebrum* are found very turgid, and the blood cloſe rammed in them. It is ſometimes cured by copious hæmorrhages of the noſe. *Sternutatories*, *vomitives*, and *veſicatories*, are likewiſe applied to good purpoſe.

But

But the true cauſes of all theſe violent *ſpaſmodic* conſtrictions are perhaps inſcrutable; and will continue ſo, till we are better acquainted with the ſtructure of the *brain* and *nerves*; points, which will, probably, for ever elude our reſearches. All we know is, that whatever irritates, or diſagreeably affects the *brain*, *nerves*, or any of the moſt ſenſible parts, occaſions continued *ſpaſms*, or convulſive motions, either in the parts themſelves, or in thoſe with which they have any conſiderable *ſympathy*; and that, when the nervous *ſyſtem* is delicate, or the irritation great, almoſt the whole muſcles will be ſometimes agitated with alternate contractions, or affected with a *tetanus*, or general rigidity.

The cure depends principally on warm *baths*, and *opiates*; a bleeding being premiſed to deplete the veſſels. While the patient is in the water, gentle friction ſhould be uſed, eſpecially about the neck and breaſt, and along the ſpine; and he is to be kept in the bath, until the pulſe become ſoft and full. When he is taken out, he muſt be wrapt imme-

diately in a dry blanket, without wiping, and ſuffered to ſweat moderately.

If the ſymptoms are not yet relieved, *opiates* muſt be repeated boldly, both as to time and quantity; and the ceſſation of the *ſpaſms*, or remiſſion of the contractions, muſt be the directory: and let it be obſerved, that, to ſuppreſs them, much larger doſes of *opium* are neceſſary, than perhaps in any other diſeaſe, except the locked jaw, which is of a ſimilar nature.

Beſide opiates, and the warm bath, emollient *clyſters*, with a large proportion of oil, ſhould frequently be injected; not only to empty the inteſtines, but, as an internal fomentation, to relax the conſtrictions of the bowels.

In the *tetanus* the ſame method ſhould be uſed, and the belly be frequently fomented with flannels, ſqueezed out of an emollient fomentation.

There are ſome milder ſpecies of theſe ſpaſmodic diſorders, that will ſubmit to the uſual antiſpaſmodics, as camphor, caſtor, valerian, aſa fœtida, and muſk; particularly, the

latter

latter, given in large quantities, viz. half a dram every four or ſix hours, has ſucceeded, when all others have failed: and ſome adviſe bliſters to the ſpine, and bathing with oil of amber.

We ſhall conclude with obſerving, that ſuch medicines as are found by experience to be uſeful in ſpaſms, and alternate convulſions of the muſcles, ſeem to produce their good effects, by that ſtimulus which they communicate to the nerves, eſpecially thoſe of the ſtomach and inteſtines, whoſe large plexus's and ramifications are very conſiderable, and have a remarkable ſympathy with almoſt every part of the body.

We frequently obſerve that a dram of brandy, by ſtimulating the nerves of the ſtomach, before it can have paſſed into the blood, will almoſt inſtantly leſſen a tremor of the hand: why then may we not account for the action of other ſtimulating medicines in a ſimilar manner, in controuling ſpaſms, and other convulſive motions, how remote ſoever from this organ?

The influence of the ſtomach in the

animal œconomy, is greater, perhaps, than it is generally imagined; as the whole ſyſtem is either invigorated, or affected with a languor, according to the different diſpoſition of the nerves. And it is the opinion of a very ingenious modern, that, in the cure of chronic complaints, however diſtant their ſeat may be from the ſtomach, thoſe will have the greateſt ſucceſs, who attentively conſider the preſent ſtate of this organ; and that much the greater part of theſe diſtempers ſeem to have been removed, rather in conſequence of the medicines given, having had a certain effect on the ſtomach, and thereby enabling Nature to do her own buſineſs, than by any ſpecific operations on the particular ſeat of the diſtemper.

When you expect a *tetanus* coming on in children, evacuate gently by ſtool, and give ſmall doſes of muſk and opium; and you will prevent the bad conſequences of an approaching fit.

Perhaps gentle evacuations by the bowels, are, in the general, found to anſwer better for convulſive maladies of all ſorts, than any other means whatſoever.

Tetanus

Tetanus.

TETANUS is an univerſal convulſion, or rigidity, ſeizing the whole body at once; whereby both the fore and hind muſcles of the head are rendered rigid and inflexible, ſo that it can neither bend one way nor the other.

Emproſthotonos.

Emproſthotonos.

THIS is a convulſion of the neck, bowing the body forwards; ſo that the chin is bent down to the cheſt, and the knees and hips drawn up to the belly; which continues thus for ſome time.

Opiſthotonos.

THIS is a convulſion wherein the body is bent backwards, ſo as to form a kind of bow. In which ſenſe the word ſtands oppoſed to emproſthotonos, where the body is bent forwards.

The opiſthotonos ariſes from a tonic motion of the muſcles of the poſterior parts of the body, eſpecially thoſe on the back of the head.

Riſus

Riſus Sardonicus.

THIS diſeaſe is a convulſive contraction of each jaw. It is a forced, ſpiteful laughter; or a laughter that does not go beyond the teeth.

The phraſe is by ſome ſaid to be founded on this, that in *Sardinia* there is a *venomous* plant, which occaſions ſuch a contraction of the muſcles of the face in the perſons it kills, that they ſeem to die laughing in this manner.

Priapiſmus.

Priapiſmus *.

THE immediate cauſe of a Priapiſm is the heat, pungency, or acrimony of the *ſemen*, accompanied with a convulſion of the muſcles of the part, which compreſſing the veins, and cavernous bodies, prevent the return of the blood.

The more remote cauſes are, too hot, ſharp, ſtimulating foods: *cantharides*, alſo, are found to perform the ſame effect, but with much more violence. There are inſtances of people, eſpecially old men, who, by making uſe of *cantharides*, to enable them to ſatisfy their paſſions the better, have been ſeized with a priapiſm, which has been followed with univerſal convulſions, and even with death.

* The term is derived from *Priapus*, a fabulous deity, particularly adored at *Lampſacus*, the place of his birth; who, for the extraordinary ſize of his parts, was exceedingly revered by the women; inſomuch that the Scripture ſeems to tell us, that king Aſa dethroned his mother Maachah, becauſe ſhe had conſecrated a grove to Priapus, and preſided at his ſacrifices. 1 Kings, chap. 15. ii. Chron. chap. 15.

Dr.

Dr. *Boerhaave* remedied this princely malady, as he has called it, by the powers of *nepenthe*:

"*Exhibeantur guttæ* xv. *ſaccharo inſtillatæ, repetitis vicibus, ad refrænandam baſilicam hanc morbi ſpeciem.*" M. S.

Mala

Mala Obſerata, or the Locked Jaw.

THIS diſorder is moſt commonly the effect of ſome external injury, whether the part which is hurt be near, or at a diſtance; though it may ariſe from various other cauſes.

Opium given in conſiderable quantities, and often repeated, is the only known remedy to ſubdue this painful, and moſt obſtinate diſtemper, aſſiſted by warm-bathing once or twice every day.

Mr. *Ballentine*, an officer in the army, by a large wound, made with a broad-ſword, on one ſide of his face, had this malady in a moſt ſevere manner.

He was ordered to begin the cure with a grain of *opium*, and to increaſe the quantity to two grains, every four hours.

A *clyſter* was given every morning; and his neck and jaw anointed with a liniment, made of *opium*, *camphor*, and *ſweet oil*, once every

every day. He remained daily, in the *warm bath*, half an hour; and ſome days, repeated it again a ſecond time.

By which means this ſtubborn diſorder was ſubdued; but not before he had taken near forty grains of opium.

He took afterwards one dram of the *bark*, in a cup of *new milk*, three times a day; and repeated it between whiles, to prevent a relapſe.

The

The Cramp.

THE Cramp is a kind of numbneſs, or convulſion, occaſioned by a thick viſcid vapour entering the membranes of the muſcles, which contracts, or extends the neck, arms, legs, &c. with a violent, but tranſitory pain. It is uſually driven off with friction alone.

Of the Palpitation of the Heart.

THIS diſeaſe conſiſts in an irregularity of the motions of the heart, whereby it is driven with violence toward the ribs; and, in its contraction, attended with a great feebleneſs of the pulſe.

There are ſeveral degrees of this *palpitation:* it is ſometimes ſo impetuous, as to be heard, and even ſeen by the by-ſtanders. The trepidation, or trembling of the heart, differs from the palpitation, or panting. In the former, the pulſations are faint, ſlow, and faultering; in the latter, the ſhakes are immoderate, violent, and convulſive.

The cauſe of the palpitation, according to *Boerhaave*, is uſually an inordinate, and forcible influx of the *vital ſpirits* into the villi of the heart; as in violent paſſions, ſudden fear, hyſteric affections, ſtrong and haſty motions. Sometimes it is owing to an irritation of

of the fibres of the heart, occaſioned by ſome ſharp ſtimulus; as an inflammation of the heart, or pericardium; or ſome other diſorder thereof, from a ſtone, worms, hairs, an aneuryſm, or the like. Sometimes it ariſes from a thick, copious, polypous blood: and ſometimes from the arteries being become cartilaginous, or bony; or their extremities being obſtructed therewith.

It is ſometimes, though rarely, *idiopathic*, or a diſeaſe in itſelf, and not dependent on any other; but it is uſually ſymptomatic, and merely an attendant on other diſorders. In general, we are to conſider it diſtinctly, as a diſeaſe, or at leaſt a ſymptom of one, from the commotions of the heart, which we occaſionally bring on by running, or any violent exerciſe, which throws the blood into commotions.

Beſides what we have already obſerved, it is to be remarked, that the paſſions of the mind very frequently occaſion this diſorder: thus ſudden fear, ſurprize, a ſuppreſſion of anger, and the like, will, at any time, bring

on a palpitation, without any other cauſe. A high diet, with a ſedentary life, often occaſions it; and in young perſons, not arrived to puberty, it is often found to be cauſed by worms bred in the inteſtines.

According to M. *Piſon*, a Doctor of the faculty at *Paris*, the palpitation of the heart, may ariſe, either from a too abundant ſeroſity thrown into the ventricles of the heart, from the grand veſſels which furniſh the blood from the lungs; or from too great a quantity of water contained in the pericardium; by which means, the heart being ſtraightened, and diſabled from moving with its uſual freedom, is obliged to make ſeveral jerks or half-beats, inſtead of the regular motions it had before: and this too great extenſion of the *pericardium*, by water, has been found to be in the bodies of moſt of thoſe which had been opened after the diſeaſe.

The beginnings of complaints of this kind, and the ſlighter caſes, while they continue ſo, are attended with no great danger; but when the diſorder grows into a habit, it is not only very

very troubleſome, but very dangerous. When more cauſes than one conſpire to produce it, it is not only more violent, but the patient is more ſubject alſo to relapſes; and, in the end, inflammations, *polypuſes* of the heart, infarctions of the *viſcera*, *fevers*, &c. Finally, when an habitual palpitation of the heart has been brought on by terror alone, it always proves very difficult of cure, whatever means are uſed.

For the cure of this malady, after bleeding ſufficiently in the foot by a large orifice, the *primæ viæ* are to be firſt cleanſed by infuſions of *rhubarb* and ſenna; and the blood is to be attenuated by drinking plentifully of warm and weak liquors, with moderate exerciſe. Then ſome of the gentle *alexipharmics*, with the ſpring juice of *brook-lime*, and *water-creſſes*, are to be adminiſtered. Finally, there are to be given ſuch things as promote an equal diſtribution of the blood and humours, as mixtures of *volatiles* and *alkalies*, viz. the ſpirit of *hartſhorn*, and tincture of *ſalt of tartar*; and gentle anodynes, if neceſ-

ſary. Beſide theſe, *clyſters* will often do great good; as will, alſo, the frequent waſhing of the feet in warm water, and embrocations of *ſpirits of camphor*, *caſtor*, and *ſaffron*, rubbed on the part.

Bleeding muſt never be omitted in this caſe, for without it no medicine will be able to take effect. When a hypochondriac habit conſpires in the cauſe of this complaint, the attemperating powders of *nitre*, *cinnabar*, &c. always prove of very great ſervice. In caſe of a *chloroſis*, with this complaint, bitters and chalybeates uſually are the approved remedies; and when a ſuppreſſion of the *menſes*, or *hæmorrhoids*, is the cauſe, the bringing them to their habitual regularities, will be the cure. It is never proper to allay the motion, till the *plethora*, which occaſions it, is removed; unleſs where it is brought on merely by the paſſions, without any antecedent cauſe in the blood: in this caſe gentle opiates may be given without danger. *Steel* medicines, and the *volatile ſalts*, when they are given in an imprudent manner, always make the diſeaſe

worſe,

worſe, inſtead of doing any thing towards a cure. Finally, a change of a ſedentary life, into a moderately active one, will do more than any medicine.

Cephalalgia, and Cephalæa.

PHyſicians commonly diſtinguiſh the headach, according to its degree and continuance. The gentleſt kind, they call *cephalalgia*; and the more violent and obſtinate, *cephalæa*.

Cephalalgia is diſtinguiſhed to be of two kinds; the *idiopathic*, and the *ſymptomatic*.

The *idiopathic* is defined to be a pain of the head, proceeding from a copious congeſtion of the blood and humours to that part: the *ſymptomatic* is that which ariſes from a fault in the *primæ viæ*, communicating with the head, by means of the par vagum; or from a tranſlation of the humours of the head, in fevers, or other diſorders.

The *cephalalgia* ſometimes ſeizes on the whole head; but, more uſually, the forehead is the ſeat of it: very frequently, alſo, it is felt about the origin of the noſe; and a weight or preſſure, and burning heat, are felt alſo in the

the bulbs of the eyes; ſo that they look red and inflamed. Sometimes the tooth-ach attends upon the cephalalgia, which, when violent, abates the pain of the other, in proportion. And ſometimes there is a noiſe, and ringing in the ears. The face, alſo, looks red, and often turgid; and ſometimes is remarkably pale, or has a redneſs irregularly ſpread over it: both which caſes are from ſtrictures upon the veſſels. The blood-veſſels of the neck, and temples, are often turgid. Some women are very ſubject to this pain, as a ſymptom of the approach of the catamenia; on the eruption whereof, it diminiſhes

People of a plethoric habit, are more ſubject than others to this painful diſorder; and, in general, young people, more than thoſe in years; and women, more than men. Perſons who live high, and drink much wine, ſuffer much more by it, than thoſe who are temperate, and uſe much exerciſe.

Among the natural, and internal cauſes; the principal are a redundancy of blood, and a derivation of great quantities towards the head;

head: hence, Nature's intention is to relieve herſelf, by a hæmorrhage from the noſe.

The external, or accidental means, that may bring on this pain, are very numerous: the natural, and habitual evacuations of blood, being ſuppreſt, as the *menſes*, *hæmorrhoids*, *bleeding at the noſe*, *and the neglect of accuſtomed bleedings*: beſides, the omiſſion of taking *purging medicines*, at cuſtomary times: great commotions of the body, and paſſions of the mind; drinking ſpirituous liquors, attracting acrid fumes through the noſe, repelling ſweats, &c. and to all theſe may be added, an hereditary diſpoſition, or injuries, from blows, or concuſſions of the head.

Nature often cures this diſorder, by *hæmorrhages* from the noſe; and hence, in general, by way of ſubſtitute for her inactivity, or inability, artificial bleeding, in the cure of this diſorder, ought, neceſſarily, to be premiſed.

The congeſtions of humours are to be derived from the ſuperior, to the inferior parts; and, therefore, the bowels are, next, to be looſened,

looſened, by *clyſters* and *purges*; for the body is uſually bound up in theſe diſorders. After this, medicines are to be given to quiet the violent emotions of the blood; ſuch as powders of *nitre*, *crabs eyes*, *calx of antimony*, with a little *cinnabar*; together with the diluent infuſions of the common tea herbs, *baum*, *ſage*, &c. and, if the pains are exceſſive, a gentle opiate may be added.

External applications aſſiſt alſo the uſe of internal medicines; of this kind are *ſpirit of wine camphorated*, with a ſmall admixture of *ſaffron*: this ſometimes almoſt inſtantaneouſly removes the pain. Coarſe bread with *juniper berries*, *carraway ſeed*, and *ſalt*, applied, as an *epithem*, is, alſo, ſometimes, a preſent help; and bags of the *aromatic* ingredients, reduced to a groſs powder, are, though a ſlower, yet often a very valuable relief. All theſe are only to be uſed in the *idiopathic* head-ach; for, in the *ſymptomatic*, regard is to be had only to the principal diſorder; and when the cauſe is removed, the effect ceaſes.

After the fits of the head-ach are over, it is proper, by way of prevention, to bleed in the

the ſpring and autumn, and frequently to bathe the feet in warm water. The uſe of gentle exerciſe is greatly to be recommended. The fatty or oleaginous remedies, preſcribed by ſome for rubbing on the head, are to be carefully avoided, as they ſtop up the pores, and prevent perſpiration. The ſmelling to pungent liquids is not of ſo much benefit, as has been uſually ſuppoſed; for it is rarely that they do more than give a momentary relief; and probably they are often the cauſe of a freſh derivation of humours to the part.

The *cephalæa* differs only from the former malady, by its obſtinate continuance, and the violence of the pain. When it ariſes from a venereal taint in the blood, it is always violent; but moſt ſo, when the patient is warm in bed. When it ariſes from a *ſcorbutic* coagulation of the blood, or an inflammation of the *meninges* of the brain, the pain is remarkably ſharp and piercing; and is attended with a febrile heat, and an intolerable thirſt. There generally comes on a vertiginous diſorder of the head, after this complaint has held

held the patient ſome time, ſo that he cannot bear any motion; for, on the leaſt ſhaking, or diſturbing of the head, the pain becomes violently intenſe, with a ſtrong pulſation. The pain is, in general, leſs violent, while the patient lies down; but as ſoon as the head is raiſed up, ever ſo little, it increaſes to a great degree. The leaſt noiſe, or motion, is terrible to perſons in this ſtate; and the light is frequently offenſive, and painful: ſo that the patient loves retirement, in darkened and quiet rooms, and avoids company. Liquors of any ſtrength, give violence to the pain, as ſoon as drank: and, in caſes of this kind, when frequent and large bleedings at the noſe happen, they give no laſting relief, but only an abatement of pain for the time.

Women are generally more ſubject to this terrible pain, than men: for they are rarely afflicted with it, unleſs when there is ſome violent diſorder, in regard to the *hæmorrhoids*; or when there is a venereal taint in the blood. Among women, thoſe are ſubject to it who live high, and lead ſedentary lives; and who

are

are of a melancholy diſpoſition, or ſubject to obſtructions of the menſes.

The general cauſe of this, as well as all other head-achs, is a violent congeſtion of blood to that part; and the peculiar cauſes which determine the head-ach to this terrible kind, are ulceroſe, or exulcerated diſpoſitions of the body: theſe principally are owing to the ſcurvy, the *venereal* diſeaſe, or any violent cutaneous eruptions driven in; or to external injuries, as blows, and wounds of the head, ill treated. The ancients ſuppoſed this owing to impoſtumes, or collections of a viſcid matter in the head; and therefore always preſcribed *bliſters*, *ſetons*, and the like, and ſometimes the piercing of the *ſkull*, in the part where the pain is moſt violent.

In the moſt favourable caſes, this is a diſtemper that with difficulty admits of a cure. Where there is a ſimple ulceration in the caſe, the cure becomes yet more difficult, but not quite to be deſpaired of; but where a venereal taint is at the bottom, a cure is ſcarce to be expected: for though the cauſe be removed,

moved, yet in this, or any other kind of cephalæa, attended with a caries of the bones, the pain will afterwards often return, and that with little leſs violence than before.

Thoſe *cephalæas* which ſometimes are relieved by Nature, by copious diſcharges of ſerous humours, are more difficult of cure than others; and thoſe which happen to perſons of remarkably plethoric habits, threaten an approaching apoplexy.

The ſame general method is to be obſerved as in the cure of the cephalalgia. But, in this, there is to be added, to the medicines there preſcribed, ſuch as powerfully diſſolve mucous humours: ſuch as the roots of pimpernel, arum, and maſterwort, with the bitter herbs; ſaſſafras, *gum ammoniacum*, *tartarum vitriolatum*, and the like. After theſe, purging is proper; and in caſes where the ſcurvy, or any venereal taint is joined, there muſt be always regard had to thoſe complaints, in the whole method of cure. And indeed the ſcorbutic *cephalæa* ſhould be always treated as the ſcurvy itſelf;

and

and the *venereal cephalæa*, as the *pox*. And where any old *ulcers* have been dried up, or any other habitual diſcharge ſtopped, and the complaint is owing to that; the making iſſues, or ſetons, muſt be premiſed to any other attempt of cure. Some inveterate complaints of this kind have been happily cured by *mercury*, whether they had, or had not any venereal taint in their foundation; and, in general, a ſalivation is a ſort of laſt reſource, be the origin what it will.

Clavus Hyſtericus.

THIS is a peculiar ſpecies of head-ach, more frequently attacking women than men; and, with them, uſually owes its origin to a ſuppreſſion of the *menſes*. In ſome caſes, the pain only attends people during the three or four firſt days of their menſtrual diſcharges, and is leſs violent: in others, it is much more ſevere, and almoſt continual; and when to the common cauſes of it, there is added a *venereal* taint, which is no uncommon caſe, it becomes then the moſt grievous of all pains in the head.

The patient is ſeized with a piercing pain about the forehead, or temples, reſembling that of a *nail* driven into the head: the pain ſometimes extends itſelf over the whole head: with this, there is generally a ſenſation of pain, about the *ſagittal ſuture*, in particular, and a remarkable coldneſs there: often there is an inflation, and redneſs of the face; with

a noiſe, and ringing of the ears. To theſe there are not unfrequently added a ſlight *fever*, a chillneſs of the extremities, a remarkable laſſitude, and want of appetite; with frequent *eructations*, and *nauſeas*, and a *coſtiveneſs* of the bowels. It generally returns about the time of the *menſes*, or, in caſes where it is continual, it rages with more than ordinary violence at that time.

Among the natural cauſes of this terrible pain, the moſt powerful are, an excretion of blood towards the head, and a ſtoppage of the menſes, and of the diſcharges by the hæmorrhoidal veins, by injudicious treatment.

Nothing can give phyſicians greater trouble, or expoſe the inſufficiency of the art of healing, more than the head-achs to which women are ſubject. The manner of life of the patients is, however, more in fault in theſe obſtinate caſes, than either the *nature* of the diſeaſe, or the ſkill of the preſcriber: high living, and idleneſs, have too many charms, to be quitted eaſily by thoſe who can enjoy them; and, therefore, while the cauſe always ſubſiſts, the cure can be only *palliative*,

palliative, or *temporary*, the diſorder always returning after a time: yet it it certain, by experience, that the moſt terrible, and inveterate diſorders of this kind, may be removed ſo as not to return, by the uſe of proper medicines, and a thorough change in the diet, and manner of life of the patient.

The firſt care in this reſpect is to keep the bowels lax, for they are almoſt naturally coſtive in this diſeaſe; for which purpoſe, emollient *clyſters* are moſt convenient: and where purges are required beſide, they muſt be always of the moſt gentle, and leaſt vellicating kind. After theſe, the violent emotions of the blood are to be quieted by powders of *nitre*, *diaphoretic antimony*, *crabs eyes*, and *cinnabar*; and if there be a ſpiſſitude in it, the neutral, and diuretic *ſalts*, are to be given, in a ſcruple at a time, every day. *Tartarum vitriolatum* alone, given in this manner, frequently has a very good effect. If it be found neceſſary, beſide this, a gentle *opiate* may be ſometimes given, ſuch as a ſmall doſe of the *ſtorax pill*; and, externally, *ſpirit of wine* and *camphor* is not a little ſerviceable. By way of

prevention, it is extremely proper to bleed at ſpring and autumn every year; and, above all things, to keep regular in regard to the *menſtrual* diſcharges. Gentle purges are to be given at times, and exerciſe neceſſarily to be adviſed; and this ſhould always be the more inſiſted upon, the more averſe the patients are to it, and the more they love to indulge in a *ſedentary courſe*.

Phrenitis.

THIS is a conſtant, and vehement *delirium*, or diſtraction; accompanied with an acute fever, and raving; with a quick pulſe, and ſtrong reſpiration: the eyes, and face are red; and the patient, when aſked queſtions, anſwers with *ferocity*.

It differs from melancholy, and madneſs; in that theſe are without fever.

The moſt frequent cauſes of this diſtemper are, the violent heat of the ſun; exceſs in wine, or ſpirituous liquors; and ſtrong paſſions: ſo that the diſeaſe may be properly ſtyled, an inflammation *both of body, and mind*.

Dr. *Willis* will have this, and the *paraphrenitis*, to be the ſame diſeaſe; and to conſiſt in an inflammation of the *animal ſpirits*, with this diſtinction; as the inflammation ariſes from the *cerebrum* alone, or the *cere-*

brum and *cerebellum* together: and concludes, that they both ariſe, in a fever, from the boiling blood's throwing its aduſt recrements into the *brain*. Others define this to be an inflammation of the *meninges* of the brain; but that, of the *diaphragm*.

Boerhaave makes the *phrenitis* either true, wherein the *cerebrum*, or *meninges*, or both are inflamed; or ſymptomatic, where the matter of the fever is tranſlated into the *cerebrum*.

The true one either kills on the third, fourth, fifth, or ſeventh day; or it changes into a *mania*, *lethargy*, *comus*, &c. *Tremors*, gnaſhing of the teeth, and grumous blood, diſtilling from the noſe in this caſe, are prognoſtics of death.

This diſeaſe is moſt frequently the effect of inflammatory, or malignant fevers; though it ſometimes ariſes from a ſuppreſſion of the natural evacuations, as the *menſes*, &c.

The cure is the ſame, as of an *apoplexy*; but where the evacuations are concerned, they muſt be firſt rectified.

Bleeding,

Bleeding, in this diſtemper, is eſſentially neceſſary: it ſhould be to a large quantity, and in the foot: if the fever continue, it muſt be repeated; and it will be right, after the firſt bleeding, to open one or both of the *jugulars*: the bleeding muſt be repeated till the extreme heat, and violence of the *delirium* is abated; and gentle cooling phyſic ſhould be given, as in other inflammatory caſes. A ſcruple, or half a dram of *nitre*, ſhould be taken every three hours, in barley water, *baum* tea, or the common *emulſion*; and a *clyſter* ſhould be given, every night and morning, when the phyſic is not taken, of a decoction of bran and mallows, with two drams of *nitre* diſſolved therein, and two ſpoonfuls of *honey*, and one of *vinegar*.

But if no receſs of ſymptoms is diſtinguiſhable, in conſequence of theſe evacuations; it will be proper to ſhave, and bliſter the patient's head; and apply frequently compreſſes of linnen cloth, dipped in *vinegar* and water, over his forehead, and temples: mean time the air of the bed-chamber ſhould be

cool and temperate; and he ought to be kept ſitting upright in his bed, with his head raiſed as much as poſſible; and taken out of bed twice a day, to ſit up, and bathe his feet, for a quarter of an hour, or more, each time, in warm water. After the night-bathing, a poultice of horſe-radiſh, muſtard ſeed, and linſeed meal, beat up with a little common *ſalt*, and *vinegar*, ſhould be applied to the ſoles of the feet, and continued on till morning: or bliſtering plaiſters may be applied to the legs.

During the whole time of the illneſs, the patient muſt be confined to plain barley-water, or water-gruel: no broths ſhould be given; and anodyne medicines ſhould be carefully avoided, while the ſymptoms continue violent.

At the beginning of this dangerous diſtemper, all the remedies above recited muſt be vigorouſly employed; but when the heat and *delirium* are conſiderably diminiſhed, *bleeding* and *clyſters* are no longer neceſſary; but

but the *nitre* muſt be continued, and the nouriſhment may be a little ſtronger.

Notwithſtanding the diminution of the *ſymptoms*, the *dilirium*, ſometimes, does not entirely give way; but it commonly decreaſes inſenſibly, on the patient's ſitting upright ſeveral times a day, in an armed chair.

Mania.

THIS is a moſt violent, and acute ſpecies of *delirium*, ariſing from a perturbation of the imagination and judgment.

As often as the ſpecies of things, wherewith we have been acquainted, are hurried together, we may be ſaid to dream; and thence, in ſleep, theſe ſpecies are added with other things, and variouſly compounded, from the manifold repercuſſions of the animal ſpirits, which ariſe from the cauſe producing ſleep, and preſſing the nerves, ſo as to revert the fluctuation of their juice. A *delirium* is, therefore, the dreaming of perſons awake, wherein *ideas* are excited without order, or coherence, and the *animal ſpirits* are driven into irregular fluctuations.

If, then, the cauſe inducing a *delirium*, be of that nature, that it can excite ideas, or motions of a conſiderable impetus, without any regularity, or order; ſuch a *delirium* will be

be attended with boldneſs and rage, and violent motions of the body; that is, a *mania* will be produced.

The ſigns of madneſs are, a bold, and reſolute aſpect; and eyes ſuffuſed with blood: only it is to be obſerved, as to the firſt-mentioned ſymptom, that thoſe perſons, who have gone mad through fear, have always in their aſpect a mixture of that terror, the object firſt gave; and of that natural boldneſs, which ariſes from *madneſs*. The patient often lays traps, and ſnares, for the getting other people into his power, with intent to hurt them, though they have never injured him. Sometimes mad people have been known to murder others; and they have always ſo much ſtrength, as to over-power almoſt any one perſon: and though they have no actual fever, yet they are inſenſible of the external cold, and, in general, of other pains, and injuries; nay, they are ſo loſt in ſpeculation, as often ſcarce to feel the blows, and laſhes they receive, in the courſe of their cure. They often do not hear the people who ſpeak to them; and are naturally of a very jocund,

jocund, and cheerful imagination; fancying themſelves kings, and princes; and are delighted with muſic. They have a violent propenſity to *venery*; and ſuch an abſence of ſhame, that they will go to ſtool, or do any thing of a like kind, before any body. This is the uſual caſe, in the height of the diſorder: and in its decline, ſome are dull and ſtupid; others very ſorrowful and melancholy; and ſenſible of their unhappy diſorder.

Madneſs ariſing from immaterial cauſes, is much more difficult of cure, than when it ariſes from the diſorders of the bodily organs: hence, when it originates from violent perturbations of the mind, or from intenſe ſtudy, it is almoſt incurable. When it ariſes from ſuppreſſions of the *ſemen*, or of the *uterine*, or *hæmorrhoidal* diſcharges, there is great hope of a cure, by proper means. But *mad people*, in general, when they ſleep ſound, and always awake in outrageous fits, are to be eſteemed incurable; or, at leaſt, greatly more difficult of cure, than others.

A briſk purge is firſt to be given; and, a day

day or two after it, the patient is to be blooded pretty freely: ten or twelve ounces, at the leaſt, ſhould be taken away. After this, the ſenſes are to be attempted to be rouzed by ſtrong *vomits*. *White hellebore* was famous on this occaſion, among the *ancients*; and there are ſome caſes in which it may be given with ſafety, and with great good effect. After this, the violent emotion of the blood is to be attemperated, by *nitrous*, and abſorbent medicines; and after theſe, the ſeveral remedies, uſually eſteemed ſpecifics, take place: of which number are decoctions of the *red anagallis*, or *pimpernel*; the *ruta muraria*, or *white maiden-hair*; the ſeveral preparations of *ſilver*; the berries of the *herba paris*; *aſſes blood*, and the like: and great care is to be taken to bring the *hæmorrhoidal*, and *menſtrual* diſcharges, as far as poſſible, to a regularity. In caſes of retenſion of the *ſemen*, purified *nitre* is to be given in great quantities; and may be alſo externally uſed, applying it to the teſtes in a cataplaſm.

The uſe of *opium* is ſcarce to be ſuffered in any delirium; but, of all things, it is not

to

to be given in *madneſs*; for it never gives thoſe patients any ſleep, but enrages, and adds to their *phrenzy*, having the ſame effect that *ſtrong liquors* would have upon them.

Dr. *Michelotti* relates the cure of a young man, who, after being expoſed in very hot weather at ſea, and having committed violent debauches in drinking, became mad, without any fever. He was cured by plentiful bleeding, ſtarving, very weak cold drink, the cold bath, and pouring cold water on his head.

Melancholy.

MELANCHOLY is a delirium without a fever, uſually attended with fear, heavineſs, and ſorrow, without any apparent occaſion. It is a ſpecies of *madneſs*, and only differs from a downright *mania* in degree.

This diſtemper conſiſts in the perturbation or injury of the imagination, which prevents it from forming a regular and determinate idea of things, as at other times; ſo that its due operations are interrupted, and often ſecond *ideas*, having no connection with the firſt, crowd in, and are ſucceeded by actions no way *analogous* to that firſt *idea*, and therefore appearing irrational.

The ancients attributed this diſtemper to black and cloudy ſpirits, ariſing, as vapours, from a redundant *atrabiliary* humour.

It is varied an infinite number of ways, according

cording to the temperament, and ideas of the perſon affected with it: it has, however, its more eſſential differences, in regard to the cauſes from which it is produced. In ſome, it ſeems wholly to depend upon a falſe *prefiguration*, and judgment of things in the mind; and in this caſe it is uſually habitual, and incurable. In others, it ariſes from injuries of the body; and in theſe, it always is obſerved to bear a proportion to the injury, or debility, of the parts. This peculiar ſpecies, is called *hypochondriac* melancholy. And, finally, in others it ſeems of a mixt nature; as when it has taken its firſt origin from diſtemperatures in the body, but is afterwards ſo increaſed by *mental* diſorders, that even, after the total removal of the corporeal ones, it ſtill remains in its full force upon the *mind*.

The ſigns of this *malady*, are a perpetual anxiety of *mind*, without any rational cauſe; a diſtaſte, and diſlike to every thing, even before it comes in ſight; and often a wearineſs, even of life itſelf. A frequent weeping for

for imaginary cauſes, or for no cauſe at all. Many run out in the ſtreets, and fields, thinking themſelves every where impriſoned; and dread being taken up for capital offences, though never guilty of any: and, in others, theſe diſtemperatures of the *mind* are evidently joined with others of the *body*; ſuch as a palpitation of the heart, ſighing very deeply, painful reſpiration, ſtrictures of the tonic motions of the parts, tremblings, paleneſs of the countenance, and extenuation of the body. Sometimes, inſtead of theſe reſtrictions, there are frequent remiſſions of the ſame *tonic* motions, whence ariſe ſudden fluſhings of the face, uncertain heats of the body, and a general laſſitude, and loſs of ſtrength. In moſt caſes of this kind there is an obſtinate *coſtiveneſs* of the bowels, and the affections of the mind are increaſed by terrible watchfulneſs; and if the perſons ſleep a little, they are terrified with troubleſome dreams all the while: if of ſanguine habits, they are continually dreaming of *blood*, and *battles*, and of *fires*; and if of phlegmatic conſtitutions, of

water, and *drowning*. Dreadful apprehenſions happen alſo between ſleeping and waking; and they uſually awake in agonies, with violent tremblings, and difficulty of reſpiration. The minds of others are employed about chearful, and often obſcene ideas; and ſometimes their fancy exalts them to the ſtate of kings and princes.*

* Puer nobilis ſatrapæ cujuſdam in Hiſpania pediſſequus, ſanus, ingenii ſtupidi, et pauci intellectûs, poſtquam in melancholiam incidiſſet, tam apte, tam prudenter ad interrogata reſpondit, tamque acutas, et ingenioſas edidit regulas de adminiſtrando regno, cujus ipſe ſe dominum eſſe imaginabatur, ut prodigij inſtar videndi, audiendique ejus cauſa complures confluerent. Ille ipſe, cui ſerviebat, herus rarò a lecto diſcedebat, Deum rogans, ne mentis ipſi reſtitueret medicus ſanitatem. Et cum ipſum priſtinæ ſanitati reſtituiſſet, male id habuit herus, doluitque ex ſapienti, et ingenioſo rurſum ſtolidum reddidiſſe. Imo ipſe puer ægre tulit, ſe priſtinam ſalutem recuperaſſe. Cum enim in delirio viveret, ejus animus ſubtiliſſimis mundi cogitationibus paſcebatur, cujus monarchum ſe eſſe imaginabatur, omneſque reges quaſi vaſſallos ſe dominum agnoſcere credebat. Quod licèt falſum eſſet, nihilominus tantam inde delectationem habebat, ac ſi reverà talis eſſet.

Ex Huardi Scrutinij ingenior. cap. 4.

Men

Men of a ſtudious turn, and ſedentary life; *hypochondriac* perſons, and *hyſteric* women; are moſt ſubject to this malady.

A ſpiſſitude of the blood; a ſuppreſſion of the *hæmorrhoidal* diſcharges in men, and the *menſtruous* ones in women; a cloſe application to ſtudy; a conſcientious dread of paſt crimes, and a continual diſappointment in the expectations; beſides the unruly paſſions, of *love, fear, dejection of ſpirits, deſpair, and anger; are the frequent cauſes of this diſorder.*

Melancholy, when it depends on immaterial cauſes, requires *phyſic for the mind*, rather than for the body; and the frequent converſation with an ingenious friend, of a calm and quiet diſpoſition, will go further towards a cure than a thouſand medicines. Perſons in this ſtate muſt be as little thwarted, and contradicted, as poſſible; and whips and chains are to be avoided, unleſs in caſes of the moſt extreme neceſſity. This is alſo a method equally neceſſary, in thoſe caſes, where habit has confirmed upon the mind that diſorder, which at firſt aroſe merely from material

cauſes. But when the diſeaſe not only ariſes, but as yet depends entirely upon material cauſes, the cure is eaſy, and is to be performed in the following manner: the *primæ viæ* are to be cleanſed by purges, particularly thoſe made of *black hellebore*; and after this the patient is to be blooded in the foot, taking away about ſix ounces. Then the blood is to be attemperated, by giving, three or four times a day, powders compoſed of purified *nitre*, and the common abſorbents; and after a due uſe of theſe, the parts are to be reſtored to their priſtine tone and vigour, by the milder *chalybeates*: the greateſt care muſt alſo be taken to bring the *hæmorrhoidal* diſcharges in men, and the *menſtrual* ones in women, to a natural, and proper ſtate; and then a ſufficient quantity of weak liquors, drank at meals, and a moderate degree of exerciſe, will bring the patient uſually to an abſolute ſtate of health.

Hypochondriac melancholy is always more relieved by bleeding, than by any other practice; and, indeed, all attempts are vain, if this

this be not firſt done. Purified *nitre* diſſolved, and taken, by ſmall quantities, in the patient's drink, will, in time, be found to do great things alone, as to a cure.

Sudor Anglicanus.

THE *Engliſh ſweat*, or *ſweating* ſickneſs, is the name of an epidemical diſeaſe, firſt percieved in England in 1485. It was properly a ſort of *plague*, ſo called becauſe it was attended with an extraordinary kind of *ſweat*. It made its return four times in the ſpace of ſixty-ſix years, *viz. in* 1506, 1517, 1528, *and* 1551.

It began with a ſweat, which never ended but either with the death of the patient, or his recovery. If he ſurvived twenty-four hours, he was ſafe. Few people eſcaped it at firſt; too much care, and too little, were found equally deſtructive. The patient was to continue without ſtirring, either in his bed, or in his cloaths, according to the condition Nature was ſurprized in; without burthening him either with remedies or with foods; without cloathing either too much or too little; and, if poſſible, without eating or drinking.

ing. The ſweat to be kept up, without either promoting it by any extraordinary heat, or checking it by the leaſt cold. This was what was found by experience; and which was at length practiſed with ſucceſs. The diſeaſe was firſt felt on the twenty-firſt day of *September*, and in the ſame day ſpread itſelf all over *England*; and, after a great mortality, it ſtopped all at once, towards the end of *October*. Its ravages were ſo great, that in ſome parts it took off a third part of the people in a very little time. At its return in 1506, it was as general, and as dangerous as before, and again diſappeared all at once. In 1528, it was leſs fatal, inſomuch that *Bellay*, *biſhop of Bayonne*, then *ambaſſador in England*, who ſweated with the reſt, tells us, that of forty thouſand ſouls, ſeized with it in *London*, only two thouſand died. In 1534, it paſſed over into *Ireland*, where it killed great numbers.

Sir *Thomas More*, in his letter to *Eraſmus*, 1517, acquaints him of the death of *Ammonius*, who died of the ſweating diſeaſe of that year, notwithſtanding the hopes he had conceived of preſerving himſelf from it by his

great ſobriety: " In his (quod tibi quoque " dolori eſſe doleo) *Andrea noſtro Ammonio*, in " quo et literæ et omnes boni magnam fecere " jacturam. Is valde ſibi videbatur adverſus " contagionem victûs moderatione munitus: " qua factum putavit ut quum in nullum pene " inciderit cujus non tota familia laboraverat, " neminem adhuc è ſuis id malum attigerit; " id quod mihi et multis præterea jactavit non " admodum multis horis antequam extinctus " eſt, nam hoc ſudore nemo niſi primo die " perit. Ego uxorque ac liberi adhuc intacti, " reliqua familia tota revaluit. Hoc tibi " affirmo, minus periculi in acie quam in " urbe eſſe."

" Among thoſe who have died, is our " friend *Andrew Ammonius*, in whoſe death " learning and all good men have ſuffered a " loſs. He thought he had ſufficiently " guarded againſt the contagion by ſobriety, " and moderation in his diet; which was " the reaſon, as he thought, why none of " his domeſtics had been viſited with the " diſtemper, at the ſame time that he ſcarce

" met

" met with any one, whoſe whole family was " not afflicted with it.

" This he boaſted to me and ſeveral others " not many hours before he died; for this " ſweat is not mortal after the firſt day. I " and my wife and children have hitherto " eſcaped, and the reſt of my family have " recovered from it. This I affirm to you, " that there is leſs danger in a field of battle, " than in this city." This letter was dated 19th Auguſt, 1520.

Nicholas Sanders, an Engliſh prieſt, ſays, that the *Engliſh ſweating* diſtemper, which was felt in *London* in the year 1550, had never before been known to the *phyſicians*. He ſays that the *river Thames*, which waters the *city* of *London*, on the *17th of December*, 1550, in leſs than nine hours, ebbed and flowed three times contrary to cuſtom. The ſame year a certain *ſweating diſeaſe, peſtilential, and mortal*, and before that time unknown to *phyſicians*, ſpread all over England, and killed an infinite number of people, ſo that in leſs than ſeven days there died in the *city of London* alone *eight hundred perſons*;

ſeveral

ſeveral *thouſands* more being ſuffocated with the ſame diſtemper in other places. It had nevertheleſs nothing of the nature and quality of the *plague:* but it was a kind of miracle and prodigy, by which the *almighty* and *merciful God* thought fit to warn the *Engliſh* of the enormous ſin which they had committed againſt him. It has done no ſervice, however, to a wicked and reprobate *generation.*

Sanderus de Schiſmate Anglican. 1588.

The *ſweating ſickneſs* (according to *Speed*, *Heylin*, and Lord *Bacon*) was firſt known in England in the beginning of the reign of *Henry* VII*th*; and in the reign of *Edward VI. ann.* 1551, it proved very fatal, and ſwept away great numbers of people. In this reign it broke out firſt at *Shrewſbury*, *April* 15, from whence it ſpread by degrees over the whole *kingdom*, till the beginning of *October.* The patient ſeized with this diſtemper, either died, or recovered within nine or ten hours at the moſt: if he ſlept, as people were generally inclinable, it proved mortal in ſix hours; and if the patient got cold,

cold, he held out no longer than three. It was obſerved to ſeize upon the ſtrongeſt perſons both for youth and conſtitution; very few young children, or old perſons catching it, or dying of it: and, which is ſtill more ſtrange, it looked like a judgment, particularly levelled againſt the *Engliſh*; for no foreigner, though converſant in the moſt infected places of *England*, ſuffered by it: neither were the *Engliſh* only attacked at home, but purſued by the infection in *other countries*, without the leaſt danger to the natives; for which reaſon moſt *Latin* hiſtorians call it by the name of *Sudor Anglicus*. The Lord *Bacon*, in his life of *Henry VIIth*, relates, that 'twas found by experience, that this diſeaſe was rather a ſurprize of Nature than too ſtrong for remedy, if applications were ſeaſonably made: for "if the patient," to uſe his own words, "were kept in an "equal temper, both for cloaths, fire, and "drink, moderately warm, with temperate "cordials, whereby Nature's work was nei-"ther irritated by heat, nor turned back by "cold, he could only recover." This diſeaſe,

eaſe, ſays the *hiſtorian*, was a peſtilent fever, but it ſeems not ſeated in the veins or humours, there appearing no *carbuncle*, nor *purple* or *livid ſpots*, nor any thing of the like nature; which was an argument, ſays he, the maſs of blood was not infected.

The *type* of this malady, as it is briefly and methodically deſcribed by *Sennertus*, conſonant to our own writers, I ſhall here inſert. Thoſe who were ſeized with it, were taken with an exceſſive languor, and were diſpirited to the laſt degree; their ſtrength gone; they complained of the greateſt diſquietude and anxiety, of a great pain in the head; they had a frequent, quick, and unequal pulſe, great palpitation of the heart; but, what was moſt remarkable, they were overwhelmed with vaſt profuſe ſweats, which ended not until the diſeaſe itſelf terminated, which was in twenty-four hours. Afterwards, when the nature of the diſtemper was better known, and they made uſe of *ſudorifics*, and fortified themſelves with *cordials*, fewer of them died.

Polydore Virgil obſerves, that, after a great number of experiments, and obſervations made

made on the methods, and things, advantageous and hurtful in the diſtemper, they at laſt hit upon the following method: that, if any one was taken in the day-time with this ſweating malady, he muſt immediately go to bed with his cloaths all on about him; if he was ſeized in the night, there he muſt lie, and not ſtir from the place until twenty-four hours were expired: they were not to be covered with ſo many cloaths as would force them into a violent ſweat, but only with as many as were ſufficient to promote and carry on a moderate *ſpontaneous ſweat*: they were to eat nothing in the time, if they could faſt ſo long; what they drank ſhould be very warm, and not exceeding in quantity what was cuſtomary, enough only to quench thirſt: whilſt they were proſecuting this method of cure, they were to be under a ſtrict obligation not to put ſo much as a hand or foot out of bed to cool it, for that was as much as their lives were worth. Some tell us, that for twenty-four hours they were not ſuffered to ſleep. Some that recovered out of this *peſtilential* ſweating, afterwards, when they had remained well for

ſome

ſome time, *relapſed into it a ſecond time*, nay, and ſometimes a *third time*.

Dr. *Freind's* Hiſtory of Phyſick gives an accurate information of this malady, from the great and learned *Caius*, our own countryman: that it began at firſt, in 1483, and returned five times, and always in the ſummer: firſt in 1485; then in 1506; afterwards in 1517; when it was ſo violent that it killed in the ſpace of three hours: ſo that many of the nobility died, and of the vulgar ſort, in ſeveral towns, half often periſhed. It appeared the fourth time in 1528, and proved mortal then in the ſpace of ſix hours: many of the courtiers died of it, and *Henry the Eighth* himſelf was in danger. In 1529, and only then, it infeſted the *Netherlands* and *Germany*, where it did much miſchief, and deſtroyed many, and particularly was the occaſion of interrupting a conference at *Marpurgh* between *Luther* and *Zuinglius* about the *Euchariſt*. The laſt return of it with us, was in 1551: in *Weſtminſter* it carried off 120 in a day; and the two ſons of *Charles Brandon*, both *Dukes of Suffolk*, died of it. At *Shrewſbury* particularly,

particularly, where our author *Caius* reſided, it broke out in a very furious manner. The deſcription he gives of it is terrible, like the *plague* at *Athens*. He very properly calls it a peſtilent contagious fever, of one natural day: the ſweat itſelf he reckons only as a ſymptom or *criſis* of this fever. The manner of its ſeizure was thus: firſt it affected ſome particular part, attended with an inward heat and burning, unquenchable thirſt, reſtleſſneſs, ſickneſs at ſtomach and heart (though ſeldom vomiting), head-ach, delirium, then faintneſs, and exceſſive drowſineſs; the pulſe quick and vehement, and the breath ſhort and labouring. *Children*, poor, and old people, leſs ſubject to it: of others, ſcarce any eſcaped the attack, and moſt died. In that town, where it laſted ſeven months, periſhed near a *thouſand*. Even by travelling into *France*, or *Flanders*, they did not eſcape: and, what is ſtranger, even the *Scotch* were free, and abroad the *Engliſh* only affected, and foreigners not affected in *England*. None recovered under twenty-four hours. At firſt the Phyſicians were much puzzled how to treat it:

it: the only cure was to carry on the ſweat, which was neceſſary, for a long time; for if ſtopt, it was dangerous, or fatal. The way therefore was to be patient, and lie ſtill, and not to take cold. If Nature was not ſtrong enough to do it, art ſhould aſſiſt her in promoting the ſweat, by *cloaths*, *medicines*, *wine*, &c. The violence of it over, in 15 hours; but no ſecurity, till 24 were paſſed. In ſome there was a neceſſity to repeat the ſweating; in ſtrong conſtitutions, twelve times. Great danger to remove out of bed: ſome who had not ſweated enough, fell into very ill fevers. No fleſh in all the time, nor drink for the firſt five hours: for in the ſeventh, the diſtemper increaſes; about the ninth, *delirium*. Sleep to be avoided by all means. It appeared by experience, as the *Lord Bacon* obſerves, that this diſeaſe was rather a ſurprize of Nature, than obſtinate to remedies, if it were in time well treated: for when proper care was taken, the patient generally recovered.

Syncope.

Syncope.

SYNCOPE is a deep and ſudden *ſwooning*, wherein the patient continues for a while, without any ſenſible heat, motion, ſenſe, or reſpiration; and is ſeized with a cold ſweat, over the whole body; and all the parts turn pale, and cold, as if actually dead.

This diſtemper may be likely to happen from various cauſes; as too great an exhauſtion of the *ſpirits*, from long faſting, exceſſive evacuation, violent exerciſe, bathing too long at a time, &c:—from the irregular motion of the *animal ſpirits*, preventing their due influx into the parts; as ſometimes happens from fear, anger, or other violent paſſions:---from immoderate *hæmorrhages*:---from an ill conſtitution of the blood, as in *cacochymias*; or in perſons that have taken ſomething that

either diſſolves, or coagulates the blood: and from ſecret diſeaſes, as *abſceſſes*, *polypuſes of the heart*, *worms*, &c.

In very numerous crowded aſſemblies, people ſometimes fall into *ſyncopes*, merely through the hot, thick, impure air they breathe. Some women alſo are liable to them upon the ſmell of *muſk*, *civet*, &c.

For *ſyncopes* many give *volatile ſpirits*, and *aromatics*. *Heurnius* recommends *treacle-water*, and *cinnamon-water*; and *Etmuller*, the *volatile ſalt of vipers*, *ſpirit of hartſhorn*, *oil of amber*, and ſometimes *bleeding*.

Muſk, *ſaffron*, and *cardiac medicines*, have been uſually blended together in the cure of this malady.

The ancients preſcribed *cordials*; and ſuppoſed that thoſe ſort of remedies exerted themſelves immediately, in comforting, and ſtrengthening the heart: but modern phyſicians rather ſuppoſe them to produce their effect, by putting the blood into a gentle fermentation, whereby the ſprings, before decayed, are repaired, and invigorated; and the tone,

tone, and elaſticity of the fibres of the veſſels reſtored; the conſequence of which is, a more eaſy, and briſk circulation.

Though the *aſcititious* vigour of *cordials*, as depending only upon the mere blaſt of ſo fleeting and fugitive a thing as *ſpirit of wine*, and without frequent renewals, is found to be but of ſhort duration; yet it often happens, that, in great languor, and depreſſion of ſpirits, by imbuing the ſtomach with their ſweetly pleaſant taſte, and flavour, they ſo revive and recreate both body and mind, to a pitch of inſpiration, as it were, to perform, in a wonderful manner, all the vital functions afreſh, which were but juſt before ſpaſmodically exploded, overpreſſed with heterogeneous combinations, and overwhelmed with *languor*, *tremor*, *horror*, &c. that they are recommended, and found to be of the greateſt uſe, and benefit, in ſome of the moſt diſtreſsful maladies that human Nature is ſubject to.

Dr. *Boerhaave*'s method of recovering perſons from fainting fits, and preventing their

falling into the like again, is by the uſe of warm *vinegar*; by applying a rag dipped therein, to the mouth and noſtrils. This he prefers to the ſcent of *ſpirit of hartſhorn*, *ſal ammoniac*, &c. and ſays, that it immediately raiſes people from languor, and *apoplexy*; and that it ſeldom fails in the *ſyncope*, or even in convulſive or *hyſteric fits*.

He ſays, moreover, that he has likewiſe had experience of the ſame remedy, in *lethargic* caſes, proceeding from taking too large doſes of *opium*.

Lipothymia is the name of a diſeaſe uſually confounded with the *ſyncope*, but really different from it in many particulars.

The *lipothymia* is a very conſiderable abolition of the vital and animal faculties, at leaſt to appearance: and the *ſyncope* is a plenary or total abolition of them: it is eaſy to ſee, however, that theſe are only two different ſtages of the ſame diſtemperature. The *lipothymia* is ſometimes an *idiopathic*, ſometimes a *ſymptomatic* diſeaſe: the *ſyncope* is *idiopathic*, and attacks perſons in health, as well as thoſe

that

that are diſeaſed. The *ſyncope* differs from death, only in degree: and the body being flaccid in this, and growing rigid under the laſt convulſions in death, is the only diſtinction of them in extreme caſes.

Vertigo.

VERTIGO is an indiſpoſition of the brain, wherein the patient ſees the objects about him as if they turned round, and fancies he turns round himſelf; though he is all the while at reſt.

Phyſicians diſtinguiſh three kinds, or rather three degrees of vertigoes.

The firſt, called a ſimple *vertigo*, is when the body, and external objects, appear to turn round, without any great dimneſs of ſight.

The ſecond, called *ſcotomia*, or *vertigo tenebroſa*, is when the eyes are alſo darkened, and, as it were, covered with a miſt.

The third is the *vertigo caduca*, wherein the patient actually falls down. But this ſeems ſcarce to differ from an *epilepſy*.

Sometimes the *vertigo* is ſeated in the forepart of the head, and ſometimes in the hindpart: the latter is the moſt dangerous.

Bellini accounts for the *vertigo*, from a preternatural

natural motion of the *retina*: for it is evident, an object will ſeem to move circularly, if the images thereof, painted on the *retina*, fall ſucceſſively on different parts of the *retina*. This they may do either by the objects moving while the eye is at reſt, or from the eye moving while the object reſts; or laſtly, the object and eye being both at reſt, and the rays falling on the ſame place, by the *optic nerve*'s being alone in motion: for, ſince a right, and an oblique incident, do not excite the ſame tremors in the *nerves*, and the ſame ſpecies of motion, if the *optic nerve* only be moved, and the object be at reſt; it will appear to ſhift its ſituation, by the change of the place in which it was repreſented.

External cauſes of *vertigoes*, are, a continual turning round of the body, drunkenneſs, too long faſting, immoderate exerciſe, ſurprize, voracity, *much uſe of pulſe*, *onions*, *leeks*, *radiſhes*, *cabbage*, *muſtard*, &c. and, in general, whatever may preſs, diſtend, or contract the arteries.

The firſt ſtep in the cure is bleeding in the *jugular*, or cupping, eſpecially if there is a

plethora: and then, in caſe of *nauſea*, loſs of appetite, or rather tokens of the ſtomach being affected, an *emetic* is to be given: *cathartics* are to be made uſe of occaſionally, and *aromatics*, *cinnab. antimon. rad. pæon. flor. lilior. conval. ſalv. roſmarin.* &c. *Stercus pavonis* is ſaid to be a *ſpecific*: *cinnab. nativ. ſal. volat. et ſuccin.* &c. are recommended.

Dr. *Gliſſon*, phyſick-profeſſor at *Cambridge*, being afflicted with a ſevere *vertigo* for three weeks, all other remedies proving ineffectual, applied, to the crown of his head, an emplaſter, *ex florib. ſulphuris cum alb. ovor.* by which he was cured.

Hydro-

Hydrophobia.

THE hiſtory of this horrible diſeaſe, which is the conſequence of the bite of a *mad dog*, has been repreſented by *Cælius Aurelianus*, *Etmuller*, *Liſter*, *Mead*, *&c.* to be attended with this ſurprizing circumſtance: that its effects have, moſt frequently, not diſcovered themſelves, till after the cauſe had been forgotten; the wound cloſing, and healing, like any ſlight, common wound. The firſt *ſymptom* obſerved, is a wandering pain throughout the whole body, but chiefly about the wounded part; the patient grows anxious, and melancholy, and very prone to anger; complaining of every thing, as the ambient *air*, the heavineſs of the bed-cloaths, &c. He vomits; his pulſe intermits; and ſomewhat of a tremor is obſerved, with convulſions of the nerves and tendons; along with theſe, he feels an inward heat and thirſt; at laſt, the great ſymptom appears, which denominates

denominates the diſeaſe, viz. the *aquæ pavor*, or dread of water; ſo that he cannot bear the ſight of any liquid, without the utmoſt conſternation; much leſs can he ſwallow the ſmalleſt drop.

With theſe, there are other concomitant ſymptoms;—*he foams at the mouth, his eyes ſtare, he cannot ſwallow his ſpittle without pain, and has a continual priapiſm. Some bark, and ſnarl like dogs*, and actually fancy themſelves transformed into thoſe creatures; and, in the height of their *madneſs*, are ready to fly upon, and tear to pieces the by-ſtanders.

Palmarius obſerves, that the *hydrophobous* patient cannot bear to look in a glaſs, or any tranſparent body: and adds, that he never recovers, unleſs he knows himſelf in a glaſs; this being a ſign that the poiſon has not laid hold of the *vital parts*.

Dr. *Mead*, from ſeveral hiſtories of remarkable caſes, concludes, that it is the effect of a particular kind of inflammation of the blood, accompanied with ſo great a tenſion, and dryneſs of the nervous membranes, and ſuch an elaſticity, and force of the fluid with which they

they are filled, that the moſt common repreſentations are made to the mind with too great effect; ſo that the uſual impreſſions on the organs cannot be ſuffered. Hence that timorouſneſs, unaccountable anxiety, and diſquietude, which are always the fore-runners of the dread of liquids; as alſo, the pain often felt in making water; and the ſtrange averſions, ſometimes found in patients, at the ſight of any thing white: the *retina* being hurt, and grieved by the lively impreſſions that are made thereon. Nor is it hard to conceive, that, when the *ſaliva* is hot, and the throat inflamed, and dry, the ſwallowing of drink ſhould cauſe ſuch an intolerable agony.

M. *Tauvry*, from a nice diſſection, and examen of the parts, of a perſon who died of this diſtemper, conjectures, that the *ſaliva*, and *bile*, are the fluids firſt infected; and that the patient vomiting a mixture thereof, the throat becomes *excoriated* thereby: and hence that horror for all foods, and particularly for *fluids*, in regard theſe diſſolve thoſe grievous ſalts contained in the *ſaliva* and *bile*. He adds, that the nature of the poiſon is ſuch,

as

as diſſolves the balſamic, and nutritious part of the blood, whence the veins are dried up, ſo as not eaſily to admit any blood from the arteries; and the arterial blood, by this means, ſuſtaining the action, and impreſſion of its veſſels, for ſo long a time, is ſtill further diſſolved, attenuated, and *ſpiritualized*, and thus ſent, in too great quantity, and with too great rapidity, to the *brain*; whence thoſe convulſions, diſtractions, &c.

Many are the boaſted ſpecifics, for the cure of this dreadful malady. Dr. *Mead*, after taking away nine or ten ounces of blood, recommends the following powder; viz. *lichen cinereus terreſtris half an ounce, and two drams of black pepper* mixt, for four doſes: one of which is to be taken for four mornings faſting, in half a pint of *warm milk*. After theſe four doſes are taken, the patient is to go into the *cold bath*, or a cold ſpring or river, every morning faſting, for a month; and afterwards three times a week for a fortnight longer. He muſt be dipt all over; but not ſtay in, with his head above water, more than half a minute, provided the water be very

very cold. But the preference is now given to *mercury*.

Immediately after the bite, if it can be ſafely effected, the ſurrounding part ſhould be cut away; and the wound be burnt with a *hot iron*: but if theſe means are not complied with, a *cauſtic* ſhould be applied to the part, the eſcar cut through, and a diſcharge promoted, and ſupported by dreſſing it with *præcipitate* for ſome weeks; and fomenting daily with *vinegar* and *ſalt*, or embrocating with *ſweet oil*.

If theſe methods are not put in practice, let the patient bitten be well waſhed with *ſalt and water*; and into the lips, and ſurface round about the wounded part, let one or two drams of *mercurial unguent*, made with equal parts of lard and mercury, be well rubbed; and let this quantity be repeated daily, till the mouth becomes ſore, and a ſpitting is excited; and then to be left off. This is *De Sault's* method.

Dr. *James* recommends the unction to be uſed twice a day; and if it can be done without ſalivating, ſo much the better. He orders

alſo

alſo the following powder, viz. *turpeth. miner.* *and camphor*, equal parts; from three grains to eight, in a little *conſerve* of *hips*; to be given every other night for three or four times. And, if a *ſalivation* enſues, then the uſe of the medicine is to be deferred, till that ceaſes; and then to be reaſſumed. But, if no ſalivation happens, in two or three days, after taking the laſt doſe of the powder, the patient is to bathe in cold water, over head, every day, till the day before the next *new* or *full moon*, when he is again to take the *turpeth powder*, and repeat it every other night, for three times, as before; and, after the third doſe, bathe again as uſual. This method is to be repeated, for three, or four ſucceeding periods of the moon.

There are others who depend on the famous Eaſt India remedy, as a ſpecific: viz. twenty-four grains of native, and the ſame quantity of factitious cinnabar, joined with ſixteen grains of muſk, taken immediately after the bite, and repeated night and morning for three days.

When the ſymptoms of infection actually invade,

invade, warm bathing, muſk, and opium, are principally relied on by ſome: thus, fifteen or twenty grains of muſk may be given every ſix hours, and one or two grains of opium every three hours, immediately, by mouth or clyſter, to procure eaſe, and abatement of the ſpaſms.

When the patient is plethoric, or attended with fever, large bleedings, with nitre, and clyſters become neceſſary: but, above all things, the patient's mind ſhould be calmed with certain aſſurances of doing well.

Clyſma refrigerans, antiphlogiſticum, in rabie caninâ. Boerhaavij.

℞ Nitr. ʒij. Acet. Sambuc. Mel. Roſat. an. ℥j. Aq. Hord. ℥x. M. f. clyſma.
Injiciatur bis vel ter in die.

It is remarked in *Perſia*, that thoſe people who are uſed to eat *opium*, live to very great ages; and they have a conceived opinion, alſo, that, by means thereof, they have a ſecure protection againſt injuries from all kinds of *venomous animals*. And may it not, therefore, be ſuſpected, that it would likewiſe

wiſe have a ſpecific virtue in the cure of the *hydrophobia?* for this dread of water does not happen till the latter end of the diſeaſe, three or four days before death; that is, not till the preternatural fermentation of the blood is come to its height: and as in the *dog*, ſo in the *patient*, a great quantity of fermentative particles are thrown off upon the glands of the mouth and ſtomach, as appears by his foaming at the mouth, &c.

This fear is not from a ſight of, or any imaginary appearance in the water; for, if the veſſel be cloſe ſhut, and the patient bid to ſuck through a quill, as ſoon as he has taſted, he falls into anguiſh, and convulſions. It is, therefore, highly probable, if not certain, that this ſurpriſing ſymptom proceeds from the intolerable pain, which any liquor, at this time taken, induces, partly by hurting the inflamed membranes of the fauces in deglutition, partly by fermenting with theſe active particles, diſcharged by the blood upon the ſtomachic glands, and thus twitching and irritating the nervous membranes; the memory of which grievous ſenſe, after it is once felt,

is

is ſo terrible, that the affected perſon chuſes any thing rather than to undergo it a ſecond time.

The effects of this irritation are manifeſt in the convulſions of the ſtomach, and frequent *ſingultus*, with which the patient is continually oppreſſed. And, indeed, Dr. *Liſter's* patient told him, that the very ſwallowing his own ſpittle put him to ſuch torture in his ſtomach, that death itſelf was not ſo terrible as the inexpreſſible agony. What remedy, therefore, can be found ſo likely to prevent the corroſive ferment, or even allay its *ſtimulus*, as *opium*, to eaſe pain, promote perſpiration, cheer the ſpirits, and procure ſleep.

Nyctalopia.

NYCTALOPIA, or *Nyctalops*, a diſeaſe which prevents the ſeeing by day, not by night; or an indiſpoſition wherein a perſon ſees better by night than by day.

The *nyctalopia* is ſuppoſed to be owing to the ſpirits being too much diſſipated in the day, but collected by night.

Boerhaave ſays, the *nyctalopia* conſiſts in this, that the *uvea* is immoveable, and at the ſame time very open.

Nyctalopia is alſo uſed by ſome for a diſeaſe of the eyes, which prevents their ſeeing, when the *ſun* is ſet, and the light begins a little to diminiſh.

In which ſenſe it amounts to the ſame with *nocturna cæcitas*.

In the general, any diſeaſe which prevents the ſeeing at any particular time, when others ſee, is called *nyctalopia*.

In the *Philoſophical Tranſactions* we have an inſtance

inſtance of a *nyctalopia*, or *nocturna cæcitas*, in a youth of twenty years of age; who had been affected with it as long as he could remember. Dr. *Parham* aſſures us, he had a good ſight all day, and diſtinguiſhed objects at all diſtances as well as any body; but when *twilight* once came, he was quite blind, and ſaw nothing at all; nor could make ſcarce any uſe of *fire*, *candle*, or *glaſſes*: yet his eyes, upon examination, ſhewed nothing at all amiſs; nor had he any *vertigo*, or other diſeaſe of the head. The cloudineſs, as he himſelf told the *Doctor*, uſed to come gradually on him like a miſt, as day-light declined. He always ſaw alike in all aſpects of the *moon*, felt no pain by *fire* or *candle* light, and was the ſame in ſummer as winter. Dr. *Briggs* accounts for the caſe thus: as vapours are raiſed in great quantities during the day-time, which being condenſed by the coldneſs of the evening, fall again, and render the *air*, near the earth, the thicker; ſo, perhaps, the humours in the eyes of this youth may be affected; and, in the evening, rendered groſſer, and more turbid:—as we ſee in

urines, which frequently grow clear, or turbid, as heat or cold is applied to them. But ſuch thickneſs or ſpiſſitude of the humours, the rays being either reflected, or too much refracted, do not reach the *retinâ*; or at leaſt ſtrike it too feebly.

The *Greek Phyſicians* are divided in their opinions concerning this uncommon diſeaſe. *Hippocrates* expreſsly ſays, We call thoſe *nyctalopes*, who ſee by night. On the contrary, *Paulus Ægineta*, and *Actuarius*, are as explicit in aſſerting, that they have their ſight perfect in the day-time, but are blind by night. *Aëtius* is of the ſame mind; though he is thought to favour the contrary opinion, when he ſays, They call thoſe *nyctalopes* who ſee better by night than in the day, and if the *moon* ſhines they are blind.

The author of the *Iſagoge* embraces both opinions, when he ſays, that they, who in the day-time ſee more obſcurely, at the ſetting of the *ſun* more clearly, but when it is night much better; or, on the contrary, by day ſee a little, but in the evening, or at night, they are blind; are called *nyctalopes*, all alike.

alike. *Galen* explains the word by a *night blindneſs*.

The *Latins* are in like manner divided in their ſentiments of the diſeaſe. *Pliny* ſays, they ſee by day; but at night, or in the evening, they become blind. *Nonius*, that they do not ſee by candle-light. *Varro*, that they cannot ſee in the evening. *Feſtus*, that they ſee better at night, than by day. *Celſus* mentions the diſeaſe under the name of *imbecillitas oculorum*; and tells us, that the patients by day ſee very well, but at night they are blind.

May not theſe two deſcriptions of the *nyctalopia*, ſo diametrically oppoſite to each other, be reconciled by fixing the diſeaſe to the claſs of intermittents? The difference then will only conſiſt in the different times of the approach of the diſeaſe: that of *Hippocrates* came on in the morning, that of *Ægineta* in the evening; both were expreſsly *periodical*, and the diſtance of time between the *paroxyſms*, in both, was, reſpectively, the ſame; a whole day, or a whole night: and

the various ſhapes, in which intermittents appear, will favour very much this opinion.

This extraordinary caſe, indeed, ſeems to ſtand alone in the annals of *medicine*; but, the *author* obſerves, we muſt be ſatisfied with a ſingle experiment, till time ſhall produce other caſes, which may determine for, or againſt it.

Νυκταλωπίας natura et cauſa.

Si Uvea inflammatur oritur Ophthalmia maxime dolens, brevi periculoſiſſima viſui; ſi ſuppuratur, perditur acies et viſus; ſi immobilis fit, ſimulque contracta oritur ἡμεραλωπία, quæ et contingit, ubi cataracta minor, ad margines tenuior, in medio ſpiſſior, adeſt; ſi autem immobilis, et ſimul valde aperta, tum νυκταλωπία oriri videtur.

Boerh. Inſtit. Med. 841.

Qui nocturna cæcitudine laborabant (nyctalopes dicuntur) plurimam urinam reddebant, poſtea paulum quiddam emittebant.

Hipp. S. vii. p. 1138.

Furor

Furor Uterinus.

THIS is a ſpecies of *madneſs* peculiar to women, owing to a too great abundance of the humours of the part, and a preternatural heat and pungency; exciting them to a vehement and uncontrollable deſire of venery, and rendering them inſatiate therewith.

A complication of *hyſterical ſymptoms* generally attends this malady: and during the *paroxyſm*, from an irregular motion of the *ſpirits*, the patient on a ſudden burſts out into laughter, which is ſucceeded by a fit of tears.

It is cured by bleeding, and purges with *calomel* and *camphor:* injections of *oxycrate*, *ſaccharum Saturni*, *&c.* with *opiates* occaſionally, a cooling diet, and frequent uſe of the *cold bath.*

The *prophylactic* cure for this ſtrong and violent paſſion, if it can be put in practice by lawful exerciſes, is, by all means, recommended, to prevent *relapſes.*

Gonorrhœa.

THIS diſeaſe is local, and is to be treated, at firſt, as an inflammation, by *bleedings*, *laxative purges*, as *manna*, and *ſalts*, *&c.* ſoft, cooling *ptiſans*, and *emulſions* with *nitre*, and gum arabic: theſe ſhould be drank of liberally, in order to ſoften and dilute the ſalts of the *urine*, that they may not irritate the inflamed parts.

Fomenting, and frequently waſhing the parts, with bran and water, to which a little *vinegar* may be added, is neceſſary, both for cleanlineſs, and utility; and to lubricate, and relax the inflamed parts, and conſequently to allay the heat and inflammation, a ſpoonful of any ſoft *oil* ſhould be thrown up the *urethra*, three or four times a day.

As ſoon as the inflammation, and pain, are abated, by thus blunting, and ſheathing the acrimonious particles; which, if the patient lives abſtemiouſly, they generally effect

in

in eight or ten days; and when the matter diſcharged, aſſumes a milder, and leſs irritating quality; gentle aſtringent *injections* may be uſed, to brace up the relaxed veſſels, and moderate, or check the diſcharge.

Various are the forms for this intention: perhaps a ſimple ſolution of *white vitriol* in fair water, is equal to moſt; the proportion may be ten grains to two ounces; but this muſt be regulated by the ſenſations, and effects. Some prepare their *injections of mercury*, as a dram of *calomel*, rubbed down with double the quantity of *gum arabic*, and diſſolved in about half a pint of *water*, to which they add occaſionally, ten, or fifteen grains of *white vitriol*, while ſome mix the *vitriol*, or a ſmall quantity of *verdigreaſe* with the *oil*.

To every ſix ounces of water, others add twenty, or thirty drops of *Van Swieten's ſublimate ſolution*, or a dram or two of *Ward's white drop*; but the quantity muſt be regulated by the effects, and irritations produced: theſe reſtringent, and oily *injections*, are, by ſome, thrown up alternately: it may be neceſſary, however, to obſerve, that, whenever the

the *ſymptoms* and pain grow worſe, in conſequence of the reſtringent *injections*, they muſt be diſcontinued; and the cooling plan muſt be again purſued, with *oil*, till theſe new complaints are removed, or carried off.

By this method, ſimple *claps* may readily be removed without giving a grain of *mercury* internally; and, if the ſymptoms ſhould be troubleſome, they may be eaſily palliated: the *phymoſis*, and *paraphymoſis*, may in general be relieved by emollient *fomentations*, and *cataplaſms*, and throwing up *oil* between the *glans* and *prepuce*: but, if there ſhould be concealed *chancres*, the *prepuce* muſt be divided; and if the ſtricture be great in the *paraphymoſis*, the folds muſt be divided by the knife, to prevent mortification.

Buboes that are hard, and not yet inflamed, and in a ſtate of ſuppuration, may be diſperſed by rubbing in daily the *mercurial ointment*, with gentle *phyſic* intermediately: but when matter is abſolutely forming, the beſt way is to promote the ſuppuration by warm *plaiſters*; and when it is formed, to evacuate it by *cauſtic*.

Priapiſmus

Priapiſms and *chordee* are to be relieved by *bleedings*, *opiates*, and *mercurial frictions*, with cooling regimen.

The *hernia humoralis*, or ſwelled *teſticle*, ſhould be treated as inflammatory, by *bleeding*, *lenient purges*, with *emollient fomentations* and *poultices*; and the remaining hardneſs may be diſſolved by rubbing it with *mercurial ointment*.

Chancres ſhould be *fumigated* with *cinnabar*, and dreſſed with *præcipitate* mixed up with ſoft *cerate*: *mercurial pills* ſhould be taken every night, prepared with five grains of *argentum vivum*: or half a dram of *mercurial ointment* ſhould be rubbed daily into the *groins*, and *thighs*; but ſo as to avoid *ſalivation*, by interpoſing, now and then, a gentle purge.

Venereal warts, and excreſcences, are to be removed by rubbing with a bit of *lunar cauſtic*, or waſhing them with a ſolution of *lapis infernalis*, viz. a dram or two in a pint of *lime water*: when they are pendulous, the ſhorteſt way is to ſnip them off, and rub them with the *lunar cauſtic*, or to fumigate them with *cinnabar*.

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In the ſecond infection, or when the blood is tainted with the *venereal* poiſon; *mercury*, and its preparations, are the antidote, and are principally to be depended on; and, in general, may be ſo directed, as to anſwer the end without *ſalivation*, by a diſcreet uſe of the *ſublimate* ſolution; the *pil. cæruleæ*; *mercurius calcinatus*; *mercurial frictions*; and decoctions of *ſarſaparilla*.

But as no preparation of *mercury* will, in all caſes, and conſtitutions, be equally effectual, it muſt be left to the prudence of the *ſurgeon*, to direct accordingly; taking care that the blood be ſaturated with the *mercury* in proportion to the degree of *infection*, and the inveterateneſs of *ſymptoms*.

It may be neceſſary to obſerve, that, when a *chancre* appears, though no bigger than a pin's head, a *mercurial* courſe ſhould be directed; as we may conclude the *venereal virus* has been taken into the habit, and may hereafter be productive of a *pox*, if the ſeeds are not now eradicated. For the removal of *gleets*, the *vitriolic injections* will be greatly aſſiſted by paſſing up *bougies*, in order to preſs down the

fun-

fungoſities in the *urethra*, till the relaxed parts recover their tone and elaſticity.

We ſhall conclude, with another remark, in regard to the removal of the *ardor urinæ*, in *claps*, by giving freely of *nitre*; which is beſt effected by ſuch ſoft mucilaginous bodies, as *gum arabic*, *linſeed* infuſion, *marſhmallow decoctions*, and *barley water*; and indeed with plenty of other aqueous vehicles, which will dilute the *ſalts* in the *urine*, and render them inſipid. Now, as *nitre* adds to theſe ſalts, and a ſolution of it applied to any excoriated part, gives conſiderable pain, which ſimple water does not, we may reaſonably conclude that this *ſalt* will rather augment, than diminiſh the pain, in evacuating it. And, indeed, this has been confirmed in practice, by its increaſing the natural *ſtimulus* of the *urine* in *claps*.

Dr. *Boerhaave* obſerves, that the ſeat, or ſole *nidus* of the *venereal venom*, as of *ulcers*, and *fiſtulas*, is the *fat*, *oil*, or *marrow*; that the depredation of the *poiſon* is confined to the *panniculus adipoſus*, and *membrana celluloſa*; that the fleſh, bones, &c. are not deſtroyed

ſtroyed by the *venereal harpy*, otherwiſe than as they depend upon the ſaid *membranes*, or are corrupted, inſtead of being defended, by the unctuous humour, grown *corroſive* from a moſt virulent taint of this *poiſon*: and theſe conſiderations ſerve to furniſh a clue for tracing the progreſs of the *venom* through its intricate *meanders*.

Further, he mechanically explains the operation of *mercury* in curing this *malady*, and ſagaciouſly obſerving the extent of its efficacy, in theſe caſes, not to exceed the road of circulation, indicates the reaſon, why a *ſalivation* will, neither, anſwer, when the *diploe*, or the *marrow* of the bones, is infected, nor in a *gonorrhœa*; much leſs, after a diſſolution of the *blood*, by the ſweating method of of *guaiacum*. If his regimen for extirpating this diſeaſe has been thought too ſevere, to proceed from too ſcrupulous apprehenſions about it, it were an error, on the right ſide, at leaſt; whereas, the too common practice, he condemns, of applying exſiccatives to the *ulcuſcula cancri dicta*, before the *virulence* is enervated, or eliminated, by proper internals, and

and fomentations, has been ſooner or later attended with diſaſtrous conſequences. By our author's caution, the cure, if tedious, is ſure, and permanent; by the contrary management, the repelled *virus* diffuſes itſelf through the whole habit, and, after an imaginary cure, the diſtemper ſhews itſelf in a worſe ſhape, and is not to be eradicated in our climate, under a month's *ptyaliſm*.

Hypochondriac and Hyſteric Affections.

IT is obſervable, that perſons, ſubject to *hypochondriac* diſorders, very rarely fall into continued, epidemic, or contagious *fevers*; and even eſcape the *plague*, and remain free from many other diſtempers.

The *hypochondriac malady* is obſtinate in its nature, and but few of a ſedentary life are totally free from it. Its ſymptoms are very numerous: the moſt uſual are, a pain in the ſtomach, flatulency, vomiting, diſtenſion of the *hypochondria*, noiſes and rumblings in the lower belly, wandering pains, a conſtriction of the breaſt, difficulty of breathing, palpitation of the heart, faintings, vigiliæ, inquietudes, ſwimming of the head, fear, ſuſpicions, melancholy, delirium, &c. In effect, it is a very vague, indeterminate ſort of diſorder.

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The ſeat of this diſeaſe is commonly ſuppoſed to be in the *animal ſpirits*, and the *nervous ſyſtem*; and its cauſes aſſigned, to be from crudities, and indigeſtions; vehement motions of the *body*, perturbations of the *mind*, as grief, anger, fear, &c.

For the cure of this diſtemper, the principal indication is to purify and ſtrengthen the *blood*, after proper evacuations, by *chalybeates*, ſtrengtheners, and *volatile ſpirits*; the *bark*, a *milk-diet*, riding on horſe-back, &c. But, above all, frequent, gentle, *anodyne* purges, are excellent.

The intention of this claſs of medicines, is to remove obſtructions of the *viſcera*, correct depraved *ferments*, repreſs *ſpaſmodic flatulencies*, reſtore a languiſhing appetite, and alleviate pain and tenſion of the *hypochondria*.

It is no wonder that the cure of *hypochondriac* affections is oftentimes found to be extremely difficult, ſince they have their *minera* in the glands of the *ventricle*, and *viſcera*; which, by a corrupted taint of vicious ferments, deprave *chylification*, and impoveriſh

the *blood*; and, by that means, render the diſeaſe too great for the power of *medicine*.

Hyſterics attending women, are, in many reſpects, of the ſame nature with the *hypochondriac* paſſion in men: but, as they are uſually of more tender conſtitutions than men, it afflicts them more violently, and often brings on a terrible ſenſation of ſtricture of the breaſt, and a ſort of *ſuffocation*, *violent anxieties*, *nauſeas*, and other painful, and often dangerous, complaints, which are unknown to men in their *hypochondriac* diſorders.

This diſtemper ſeems to ariſe from conjeſtions of blood in the *viſcera* of the *abdomen*, which ſhould find paſſage by the *uterine*, or *hæmorrhoidal veins*, but is impeded. And as this is alſo the cauſe of the *hypochondriac* affections in men, it is no wonder that the generality of *ſymptoms* are the ſame in both, and the method of cure muſt be nearly the ſame. It is to be obſerved, however, that, though obſtructions are the common cauſe

cauſe of theſe diſeaſes in both ſexes, yet women are ſometimes found afflicted with this, while the menſes flow properly, in due quantity, and at their regular periods. In this caſe, the diſorder ſeems owing to acrid humours in the *primæ viæ*, exciting *ſpaſms* wherever they come.

The ordinary cauſes of this diſorder are violent paſſions, rage, love, grief, ill-news, ſweet ſmells, &c. As for the popular notion of malignant vapours ariſing from the *womb*, and being the principal cauſe of moſt of the *ſymptoms* in this diſtemper, the learned all diſcard it, and hold men as ſubject to the diſeaſe, as women. The real cauſe they affirm is in the *animal ſpirits*, and the *nervous ſyſtem*; and the affection does not differ from the *hypochondriac*.

Some women under this diſorder, fancy a rope tied about their necks, ready to ſtrangle them; and others think a piece of ſomething is got into their throats, which they cannot ſwallow, but which ſtops their breath: and ſome will even remain, a good while, as

if really ſtrangled, without any ſenſe or motion.

In the time of the fit, when the ſenſation of ſtrangulation is violent, and there are convulſive motions, or faintings, the *fetid* and *volatile* medicines ſerve to recover the patient; ſuch as *ſpirit of hartſhorn*, *oil of amber*, *tincture of caſtor*, and the *volatile ſalts* held to the noſe, or taken inwardly, as alſo the burning of *feathers*, *horn*, or *leather*, or any other ſubſtance, which has a very diſagreeable ſmell while in the fire: rubbing the hands and feet alſo are of great ſervice; and ſome recommend the pulling-off of the hairs ſingly, and other methods which give pain, to bring the patients to themſelves.

The more common ſymptoms or accidents of this diſeaſe, are a ſwimming of the head, dazzling of the eyes, palpitation of the heart, flatulencies, vomitings, deliriums, and convulſions. But it is not always attended with all theſe *ſymptoms*; but ſometimes with more, and ſometimes with fewer of them, and thoſe more or leſs violent.

Theſe

Theſe diſorders are moſt effectually allayed by ſuch things as are in a manner the reverſe of cordials; and are, both in ſmell and taſte, very offenſive and diſagreeable: they ſeem to anſwer the end by ſuffocating, as it were, the ſpirits, and damping their inordinate ſallies, ſo that ſuch ſtimulation ceaſes, and the fibres return to their natural tone and motions: for, as what is grateful to the ſenſes gives an inexpreſſible emotion to the fine *nervous* filaments, ſo does what is *fetid* and diſagreeable quite deſtroy that emotion, and deaden it; and as the former kind conſiſt chiefly in fine ſubtile *volatile parts*, by which they are fitter to enter the *nerves*, ſo theſe are generally of a clammy, viſcous contexture, and therefore the fitter to envelope and entangle that ſubtile *juice*, whereby its motion is much retarded.

Phthiſis, or Conſumption.

THIS diſtemper is a preternatural decay of the body, by a gradual waſting of the muſcular fleſh, for want of nouriſhment.

The cauſes of which may be, either from the natural conſtitution of the body, and the tenderneſs of the arterial veſſels, or from an acrimony of the juices; any great force upon the lungs, as coughing, hollowing, ſinging, running, &c. interceptions of uſual evacuations, as piles, menſes, lochia, bleeding at the noſe, and omiſſions of cuſtomary bleeding.

Many are the diagnoſtic ſigns of this malady; as heat in the palms of the hands, redneſs of the cheeks after eating, extenuation of the ſolid parts, incurvation of the fingernails, paleneſs of the face, and a falling-off of the hair, &c.

The ſymptoms in general, are a dry cough, ſmall fever, and heat; a propenſity to ſweat after ſleeping; a panting for breath, upon the leaſt

leaſt motion; ſpitting blood, florid and frothy; weakneſs; and pulſe ſoft, ſmall, and waving.

The hectical phthiſis hath its origin in the winter's cold; and the principal cauſe of every evil ſymptom originates from an acrimonious taint in the fluids, which is productive of a cough, hoarſeneſs, and, in proceſs of time, of many other grievous ſymptoms.

The cure conſiſts in directing the non-naturals, ſo as to make them contrary to the cauſes.

Bleeding, either in the arm, or foot, is to be repeated every three or four days, till the inflammatory cruſt has entirely diſappeared; and cooling, thickening, ſtyptic, ſoftening medicines, mixed, now and then, with gentle balſamics, are to be perſiſted in for a long time; and the daily exerciſe of riding on horſe-back, if it can be complied with, is ſtrongly recommended.

Alterative medicines are principally to be depended upon, to correct the poiſonous acrimony: and a regimen of diet, ſmooth, ſoft, and nutritious, conſiſting of milk and vegetables, the white of new-laid eggs, beat up

with barley water, and a little honey; ſnails boiled in milk, viper-broth, aſſes milk, &c. to dilute the ſharp particles, and waſh them out of the blood, ſo that they may be carried off either in the urine, or other excretions.

Both mercury, and antimony, given in ſmall doſes, have proved very ſerviceable in the cure of this diſtemper; and Dr. *Huxham*'s vinum antimoniale, taken in milk, has been proved to be of great efficacy.

The following remarkable hiſtory of the powers of antimony, may not be unacceptable to the reader:

" A gentleman in the laſt ſtage of a con-
" ſumption, was ſent into the country, to
" try the laſt remedy, aſſes milk. He drank
" it under the direction of an eminent phyſi-
" cian, who was ſurprized to find that it not
" only purged him (a common incident), but
" vomited him alſo. The patient, however,
" notwithſtanding theſe evacuations weak-
" ened him, ſoon found his breath relieved,
" his ſpirits better, and a general amendment
" in his conſtitution. The Doctor, therefore,
" adviſed

" adviſed him to perſevere; and as the milk " grew familiar to his ſtomach, the vomiting " and purging gradually abated, till it agreed " perfectly well: in fine, the gentleman re- " covered; and the vomiting power of the " milk was attributed to the aſs drinking her " water out of a trough, impregnated with " liver of antimony; ſeveral lumps of which " were diſcovered in it, and had been occa- " ſionally put there for the uſe of the hounds, " who drank out of the trough.

" How far the milk of the aſs might be " ſaturated with this powerful medicine, by " the proceſs of Nature, we ſubmit to the " ingenious reader; but think it no bad hint " for the uſe of mild antimonials, given as " alteratives, and correctors of the blood and " juices, in this deplorable malady."

Atrophy.

Atrophy.

THIS diſtemper is much of the ſame nature with a phthiſis, but takes its origin from infarctions of the glands of the meſentery, pancreas, or liver, and is moſt common to children; whereas the phthiſis is a like diſtemperature of the lungs, and affects perſons nearer the time of growing to man's eſtate.

The ſymptoms ariſing from theſe cauſes, are a waſting of the fleſh, great weakneſs, and want of ſpirits, a general languor of body and mind; internal heat, thirſt, &c.

This diſeaſe is uſually brought upon children by improper nouriſhment; or from milk, coagulated, by a prevailing acidity, in the ſtomach, or duodenum; and from worms. And in length of time, either through neglect, or for want of proper management, in the cure of ſuch patients, the rickets, and ſwellings

about

about the joints, or crookedneſs and diſtortions, are the natural conſequences.

Gentle abſtergents, at firſt, to cleanſe the primæ viæ, with reſolvents, and attenuants, have been proved to be proper remedies for the cure of this diſtemper: for which purpoſe, calomel and rhubarb taken between whiles, with a decoction of arum and pimpernel roots, the juice of ground-ivy, and the aperient tincture of ſteel, are accounted excellent medicines. Added to theſe, a milk-diet, and exerciſe, have been found beneficial means to reſtore health.

The mouths of the lacteals may be ſhut up by a viſcid mucus, in which caſe the chyle paſſeth by ſtool, and the perſon falleth into an atrophy.

Coma.

Coma.

A Violent propenſity to ſleep, whether ſleep enſues or not, is the eſſential character of this diſeaſe.

If ſleep do enſue, the diſeaſe is called coma ſomnolentum; wherein the patient continues in a profound ſleep: and when awaked, immediately relapſes, without being able to keep his eyes open.

If he do not ſleep, but is continually awaked with frightful dreams, it is called coma vigil: in this caſe alſo his eyes are ſhut, and he appears to be aſleep.

The cauſe of the coma ſomnolentum may be any thing that prevents the courſe of the ſpirits: as a cold humid temperature of the brain; hot putrid vapours aſcending into the head, and ſtopping the canals of the animal ſpirits; narcotic vapours, &c.

The coma vigil ſeems to be a medium between a lethargy and phrenzy; and is ſuppoſed

poſed to ariſe from the conflict, or jarring mixture of bile and pituita, the one urging to ſleep, the other to waking. Hence the patient ſleeps either not at all, or, at moſt, but for a moment; is uneaſy, ſtarts, riſes up, and ſometimes throws himſelf on the perſons near him; his eyes continuing all the time faſt cloſed.

The remedies for a coma, are thoſe which occaſion great evacuations; as violent clyſters, and vomitives: medicines that purge, dry the brain; and thoſe which occaſion a revulſion of humours; as veſicatories, cauteries, &c. to which may be added volatile ſpirits, ſalts, and moſt cephalics.

However, the phyſician ought very exactly to enquire into, and find out the cauſe of this malady, before he determines how to act: for ſometimes the very contrary means ought to be purſued, of that which has ſucceeded in ſeemingly the like caſe.

Carus.

Carus.

THE Carus is a ſlight apoplexy, but a very heavy, obſtinate ſleepineſs, with a fever; proceeding chiefly from cauſes which do preſs upon, or obſtruct the brain. The patient has ſome perception, but momentary; ſome ſenſation, but in a ſmall degree.

The carus differs from the coma in this: that, in the latter, he anſwers when interrogated; but not in the former: from a proper apoplexy, by the momentary ſenſation, and the freedom of reſpiration; which is always more obſtructed in the apoplexy: from an epilepſy, in that there is no motion, or froth at the mouth, in a carus: from a ſyncope, by the pulſe; which are high, and the face ruddy; whereas, the pulſe are low, and the face cadaverous, in the ſyncope: from an hyſteric ſuffocation, in that the patient hears, and remembers

bers things; which he cannot do in the carus.

Galen deſcribes the carus, as a privation of ſenſe and motion, throughout the whole body, the reſpiration remaining entire; followed by a profound ſleep, and the eyes always cloſed: but ſenſation not ſo abſolutely deſtroyed, but that the patient can feel a puncture with a pain, though he is not thereby awakened, either to open his eyes, or ſpeak.

The carus is deſcribed, by modern phyſicians, as a drowſy diſeaſe; ſlighter than the apoplexy, but ſeverer than a lethargy; and frequently degenerating into the former; occaſioned by an obſtruction of the courſe, and diffuſion of the animal ſpirits, from the medulla of the brain, towards the cortex.

The ſame method of cure, as has been given for the apoplexy, is alſo recommended for the carus.

The wakeful, and the ſleepy coma, and the cataphora, ſeem to be only ſlighter ſorts of cari.

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The lethargy alſo is a ſlighter ſort of apoplexy, from a cold, ſlow, and watry cauſe; and the cure is the ſame as that of the pituitous apoplexy.

Noctambuli.

Noctambuli.

NOctambuli (or rather Somnambuli) are people who have a habit of walking about in their ſleep.

Schenckius, Horſtius, Clauderus, and Hildanus, have given us divers unhappy hiſtories of ſuch noctambuli.

This is a very remarkable diſtemperature of the imagination; and, in different perſons, differs greatly in degree. Thoſe who are but moderately affected with it, only repeat their actions of the day; and, getting out of bed, go quietly to the places they frequented at other times: but thoſe who are afflicted with it in the moſt violent degree, go up to dangerous places; and do things that would terrify them to think of, when awake: theſe are by ſome called lunatic night-walkers, becauſe fits are obſerved to return, with more frequency, and violence, at the changes of the moon.

The diſorder ſeems to conſiſt in this: that the proper organs of muſcular motion are at liberty, while the organs deſtined for ſenſation are firmly bound up, or in a ſtate of inaction.

To conceive the cauſe: it is to be obſerved, that the laws of the union of the ſoul and body are ſuch, as, that certain ideas follow upon certain motions of the fibres of the brain; and certain motions of thoſe fibres, upon certain ideas. Now, by much thinking on any one thing, the fibres acquire ſome permanent ſituation, which gives a freer paſſage to the ſpirits, toward a certain part of the body, than ordinary. If, then, the animal ſpirits become too copious, or to much agitated, or conſiſt of parts too ſolid; they throw themſelves into paſſages they find the moſt open, glide into the nerves, and muſcles, correſponding to thoſe paſſages, and there produce the proper motion of thoſe muſcles.

Accordingly, the body riſes, and walks; though the ſoul be excluded from thinking on the objects that uſed to employ it on ſuch occaſions.

The bilious, according to Horſtius; the melan-

melancholic, according to Salius; and the ſanguine perſons, according to Libavius; are moſt ſubject to theſe nocturnal vagaries.

The only material cauſe that can be aſſigned, in this caſe, is a plethora, or over-fulneſs of blood; but this is influenced by an immaterial one, that is, by the fancy; which is buſily employed in dreams about particular objects.

The remedies are, all ſuch things as temper the agitation of the ſpirits, and relax the fibres; as bleeding, and all coolers, either internally, or externally: aperitives, too, have a good effect; but the beſt remedy, according to ſome, is cold bathing.

The primæ viæ are firſt to be cleared of all their foulneſs, by a ſtrong purge; after this it is proper to bleed in the foot, taking away eight or ten ounces; then powders compoſed of nitre, cinnabar, and crabs eyes, ſhould be taken three or four times a day, and particular regard ſhould be had to the changes of the moon.

It will be proper to ſet a veſſel of water by the bed-ſide, without the perſon's know-

ledge; in ſuch a manner, that he will naturally ſtep into it, in getting out, and be awaked by that means: and if theſe things fail, a perſon ſhould be ſet to watch him, and beat him every time it happens.

The

The Scurvy.

THIS diſeaſe is very frequent in the northern countries, particularly in fenny, damp places, and much expoſed to the north. It is accompanied with a great variety of ſymptoms; whence Dr. *Willis* ſays, it is not any particular diſeaſe, but a legion of diſeaſes.

The moſt uſual ſymptoms are bleedings, coughing, vomiting, difficulty of breathing, looſeneſs, a relaxation of the parts, ſweating, a fetid ſmell of the gums, a falling-out of the teeth, ſtinking breath, reddiſh or yellow livid ſpots, pains of the arms and legs, wearineſs, faintings, head-ach, &c.

There are ſome who derive all diſeaſes from the *ſcurvy*: *Boerhaave* tells us it produces *pleuritic*, *cholic*, *nephritic*, *hepatic pains*; *various fevers*, as *hot*, *malignant*, and *intermitting*; *dyſenteries*, *faintings*, *anxieties*, *dropſies*, *conſumptions*, *convulſions*, *palſies*, *fluxes of blood*: in a word, it may be ſaid to contain the ſeeds

and origin of almoſt all diſtempers. A *cachexy*, or ill habit, is much of the ſame nature with the *ſcurvy*. It is ſuppoſed by phyſicians, that the immediate cauſe of the ſcurvy lies in the blood, the fibrous part of which is thick, and the ſerum too thin and ſharp; and that hence ariſes the great difficulty in the cure, becauſe in the correcting of one part, regard muſt be had to the other. It is well known how extremely difficult it is to cure an inveterate ſcurvy; how many ſcorbutic patients have grown worſe by an injudicious courſe of evacuations; how many are even rendered incurable by the treatment of inconſiderate phyſicians; and how difficult, tedious, and uncertain the cure is, in the hands even of the beſt, who are obliged to uſe ſuch variety and change of medicines in the different ſtages of that malady; which nevertheleſs may be cured, ſays the *Biſhop of Cloyne*, by the ſole, regular, conſtant, copious uſe of *tar-water*. In the cure of the *ſcurvy*, the principal aim is to ſubdue the *acrimony* of the blood and juices; but as this *acrimony* proceeds from different cauſes, or even oppoſite,

poſite, as acid and alkaline, what is good in one ſort of *ſcurvy*, proves dangerous, or even mortal, in another. It is well known, that hot anti-ſcorbutics, where the juices of the body are *alkaleſcent*, increaſe the diſeaſe; and ſour fruits and vegetables produce the like effects in the ſcurvy cauſed by acid acrimony. Hence fatal blunders are committed by unwary practitioners, who, not diſtinguiſhing the nature of the diſeaſe, do frequently aggravate, inſtead of curing it. The *Biſhop* ſays, if he may truſt what trials he has been able to make, this water is good in the ſeveral kinds of *ſcurvy*, whether acid, alkaline, or muriatic; and he believes it the only medicine that cures them all, without doing hurt in any.

In a high degree of *ſcurvy*, a *mercurial ſalivation* is looked on by many as the only cure; which, by the vehement ſhock it gives the whole frame, and the ſenſible ſecretion it produces, may be thought to be more adequate to ſuch an effect: but the diſorder, occaſioned by that violent proceſs, it is to be feared, may never be got over. The imme-

mediate danger, the frequent bad effects, the extreme trouble, and nice care attending ſuch a courſe, do very deſervedly make people afraid of it. And though the ſenſible ſecretion therein be ſo great, yet in a longer tract of time the uſe of tar-water may produce as great a diſcharge of ſcorbutic ſalts by urine and perſpiration; the effect of which laſt, though not ſo ſenſible, may yet be greater than that of ſalivation; if it be true, that inſenſible perſpiration is conſiderably more than all the reſt of the ſenſible ſecretions together.

A very exact diet is held of more effect in the ſcurvy, than the beſt medicines; without this it becomes incurable. *Bleeding* does not avail; ſtrong *purgatives* are hurtful: ſo is *ſugar*, and all ſugared things: *mercurius dulcis* uſed internally, ſo as not to ſalivate, but only raiſe a ſweating, is found excellent. *Dolæus* undertakes to cure any *ſcorbutus* in twelve days time by the uſe of this alone; only the patient is to drink nothing all that time, but a proper decoction, and to abſtain from acids and hogs fleſh.

The ingenious Dr. *Macbride*, whoſe experiments

riments on alimentary mixtures are well worth conſulting, ſtrongly recommends an infuſion of malt for the cure of this diſtemper at ſea, and thinks it bids as fair for the cure as the juice of any recent vegetable. From a variety of experiments, he concludes that the property, common to all freſh vegetables, is, that, when mixed with any animal ſubſtance, and placed in the proper degree of heat, they preſently run into fermentation, and in the courſe of it throw off an *elaſtic vapour*, or *ſpirit*, of ſurprizing activity, endowed with a power of reſtoring ſweetneſs to putrefied animal foods. Hence he concludes, that thoſe vegetable ſubſtances, which, though not perfectly recent, are yet capable of fermentation, as common malt, if taken in the way of medicine, would in all probability produce ſimilar effects to thoſe produced by green vegetables: and, indeed, from ſome caſes lately publiſhed, this ingenious conjecture of the *Doctor*'s, ſeems to be juſtified by experiment.

Take a quart of ground malt, and pour on it three quarts of boiling water; ſtir them well

well together, and let the mixture ſtand cloſe covered up, for three or four hours; after which ſtrain off the liquor. It ſhould be brewed in hot weather every day. A quart or more of this infuſion is to be drank in the courſe of twenty-four hours, with ſome drops of elixir of vitriol, if it ſhould purge.

He propoſes alſo to boil the wort up in a *panada* with biſcuit, or ſome of the dried fruits uſually carried to ſea, and to make two meals a day of this palatable meſs.

The land *ſcurvy* is often more troubleſome than dangerous: the hot ſpecies is generally removed by the antiſcorbutic juices, and a vegetable diet; the cold, by the warm plants, as horſe-radiſh, burdock, meſereon, &c.

When the blood is thin and acrimonious, the bark and its decoction are often ſucceſsfully given with elixir of vitriol: and in that troubleſome diſorder of the face, called gutta roſacea, it has ſometimes had ſurprizing ſucceſs, when properly perſevered in.

To remove the red, livid, and dark ſpots, and thoſe violent indurations which are often obſerved in an inveterate ſcurvy, let the patient

tient be well rubbed, two or three times a day, with the following liniment, viz. ℥vj. of Spaniſh ſoap, ℥ij. of camphor, and ℥iij. of ſal ammoniac, diſſolved in a pint of brandy.

But to correct the blood and juices, and rectify the habit, one, or other, of the above remedies, adapted to the particular ſpecies of the diſorder, and conſtitution, muſt be continued for ſome time.

Cachexy.

THIS diſeaſe takes its origin from a foulneſs of the ſtomach, and viſcera, creating a vitiated temper and diſpoſition in the nutritious juice, a great debility of the ſolids, and a ſtagnation of the fluids; whence a bloating of the fleſhy parts, with a paleneſs and lividneſs of the complexion, a leucophlegmatia, and anaſarca.

It moſt frequently attacks perſons of a phlegmatic habit, and more commonly women than men; as well on account of their ſofter texture, as of the frequent diſorders which the irregularity of menſtruation often occaſions. A ſedentary courſe of life, unwholeſome food, crapulas, immoderate hæmorrhages, and chronic fevers, are the moſt frequent cauſes of this diſtemper.

There is no diſeaſe more readily known than this, as none has ſuch obvious and diſtinctive ſymptoms. The face, hands, feet, and

and legs, are always bloated, and ſwelled beyond their natural dimenſions; the natural heat of the body decreaſes, and there is an evident and actual ſenſation of cold in the parts. This is attended with an univerſal languor, and anxiety of mind, and a painful weakneſs in going up ſteps, or walking up hill. The appetite is very uncertain, and loathings of food are very frequent; and, after eating, all the ſymptoms of a bad digeſtion; as tenſions and oppreſſions of the ſtomach, and flatulencies. The bowels are in a very uncertain ſtate, ſometimes remaining coſtive for a long while together; and at others, throwing off the food undigeſted, in the manner of a lientery. The patients have always a great propenſity to ſleep, but find no refreſhment by it. The urine is but ſmall in quantity, ſometimes red, and ſometimes pale; the pulſe languid, and weak; and the blood is pale and thin, and abounds in ſeroſities: difficulty of breathing, heats and fluſhings at times, and the head always diſturbed, and not unfrequently vertiginous, and violently painful; and œdematous

tous tumors appear on the feet when the patient is ſtanding up, but diſappear again when he lies down.

The general method of cure muſt be by correction of the vitiated humours, a reſeration of the viſcera, and an evacuation of the humours when thus prepared for it; and, finally, a reſtitution of due tone to the ſolids.

The patient ſhould be treated at firſt with reſolvents, and digeſtives, ſuch as the *tartarum vitriolatum*, and abſorbents ſated with acids, as *crabs eyes* with lemon-juice; and with aperient decoctions of *guaiacum*, *ſaſſafras*, &c. and either during the time, or afterwards, evacuants are to be given. If the improper treatment of a fever has been the occaſion of this malady, the mild *alexipharmics* are to be given at times; and when an obſtruction of the menſes is in the caſe, the time when they are expected is to be carefully regarded, and emmenagogues, and baths for the feet, are to be ordered at thoſe periods. When obſtructions of the hæmorrhoidal diſcharges are the caſe, then leeches ſhould be applied to the hæmorrhoidal veins:

and

and if the diſeaſe has ariſen from long-continued hæmorrhages, then analeptics are to be truſted to, with very gentle correctives, for fear of exciting new commotions in the blood; in theſe caſes, bleeding in the arm is ſometimes found neceſſary. But, after all, *Cachectici, quo leniùs tractentur, eò citiùs curentur.*

The

The Dropſy.

PHYSICIANS mention three ſpecies of *Dropſy:* the *leucophlegmatia* or *anaſarca*; the *tympanites*; and the *aſcites*. This diſeaſe, however diſtinguiſhed, is a preternatural collection of ſerum in ſome part of the body, or a too great proportion thereof in the blood: For an exceſs of ſeroſities is common to them all.

The *aſcites*, or *dropſy* of the *abdomen*, is the moſt uſual caſe, and what we particularly call the dropſy: the ſigns whereof are tumors, firſt of the feet and legs, and afterwards of the abdomen, which keep continually growing; and if the belly be ſtruck, or ſhook, there is heard a quaſhing of water. Added to theſe, are other attendant ſymptoms: viz. a dyſpnœa, intenſe thirſt, and a diſcharge of urine in ſmall quantities; with a heavineſs, liſtleſſneſs, coſtiveneſs, a light fever, and an emaciation of the body.

The

The curative indications are two, viz. the evacuation of the water; and the ſtrengthening of the blood and viſcera. The firſt is effected by ſtrong purgatives, and diuretics: the ſecond, by exerciſe, change of air, wine, and other generous liquors; ſtomachic, chalybeate, and other corroborating medicines.

When other means fail for evacuating the water, recourſe is to be had to the paracenteſis, or operation of tapping.

In the *leucophlegmatia* an inciſion is to be made in the inſide of the leg, two fingers breadth above the ancle, as far in as the cellular membrane, and no farther; in order to ſerve as a drain for the water, which ſhould run for ſeveral days. And during this time let the leg be fomented with a decoction of emollient and warm herbs, with an addition of camphorated ſpirit of wine; which method has proved an abſolute cure, by draining off an almoſt incredible quantity of water for many days together. But care muſt be taken not to over-exhauſt the patient's ſtrength; which is as much affected by this evacuation, as if a large quantity of blood were drawn:

wherefore the patient is to be ſupported by all poſſible means.

In curing flatulencies of the ſtomach and bowels, the proper method is to promote the diſcharge of the vapours by the anus, and to attenuate and carry off by ſtool the viſcid matter which is the occaſion of them. To this purpoſe diſcutient and evacuating clyſters are very ſerviceable: theſe ſhould be prepared of camomile, hyſſop, juniper-berries, and the carminative ſeeds, a little quantity of ſal gem. crude ſal ammoniac, or Epſom ſalt, in veal-broth. After theſe, laxative medicines are to be given, with balſamic and carminative ingredients; and then the powders of zedoary, orange peel, and tartarum vitriolatum: and, when neceſſary, the pilulæ de Styrace at proper intervals. In the mean time much ſervice may alſo be done by external applications; ſuch as the oils of mint, rue, nutmeg, and the like, with balſam of Peru: and the rubbing the belly with Hungary water is often of immediate relief. By theſe means the ſlighter inflations of the ſtomach and inteſtines

tines are uſually cured with eaſe, and often beginning tympanies yield to a continuance of them.

The moſt effective medicines in the cure of a tympany, are mild purges, with oil and opium; carminatives, and the warm bath.

In an aſcites, it is very material to conſider what evacuations the patient is capable of bearing: for when he is weak, violent purging is very prejudicial; and the more the ſeroſities are drained out of the inteſtines, the greater quantity of them flows into the belly. When this is the caſe, we ought to deſiſt from ſtrong purging; and try to carry off the redundant water by the urinary paſſages: which is ſafeſt done by lenient cathartics, and diuretics, of which ſquills are the moſt efficacious.

℞ Succ. Limon. ℥vj. Sal. Abſinth. ʒſs. m. et adde Aq. Cinnam. ſimpl. ℥jſs. Aq. Menth. Piper. Spt. ℥ſs. Acet. ſcillit. Syr. Coſt. Aurant. an. ʒj. vel ʒjſs. M. f. hauſtus, bis in die ſumendus.

An infuſion of broom-aſhes, is alſo beneficially ordered by phyſicians, upon account of its diuretic quality; and if it be mixed with a little wine, it will often make a good common drink for the patient.

Dr. *Mead* hath recorded a very remarkable caſe of a *lady*, who at fifty years of age had a hard ſwelling on one ſide of the *abdomen*, which without doubt was one of the ovaries grown to a very large ſize; and its lymphatics burſting ſpewed out their contents, and gradually formed an aſcites. Purgatives, and diuretics of all ſorts, were tried in vain. She was tapped three times, and ſoon filled up again. It happened at length, that a poor country-woman came to ſee her, who, obſerving her in great pain from the tenſion of her belly, eaſily perſuaded her to take, every night and morning, a ſpoonful of whole muſtard ſeed, and drink on it half a pint of decoction of green broom-tops. After three days taking this bitter potion in this manner, ſhe found herſelf vaſtly relieved; and her thirſt, which had been very troubleſome, was entirely appeaſed. This medicine ſometimes

times gave her ſtools for two or three days ſucceſſively, and ſhe made five or ſix pints of water, at leaſt, every day. She continued this courſe for twelve months, and was cured without any return of the diſeaſe.

The ſame learned author takes notice, that narcotics are ſometimes found ſo uſeful in this diſeaſe, that they may be placed among diuretics; for, in caſe of great pain, by relaxing the fibres of the renal ducts, which are always conſtringed in pain, they promote a diſcharge of urine, as will appear by the following remarkable caſe:

A robuſt, ſober, temperate man, of about forty years of age, was afflicted with an aſcites and tympany together. The diſeaſe was owing to a violent blow in the right hypochondrium. The ſwelling of his belly daily increaſed, with very ſevere pain, great thirſt, and thick high-coloured urine rendered in ſmall quantity. The moſt powerful diuretics, as Venice ſoap, lixivial ſalts, balſam of Gilead, nitre, and the like, were preſcribed, but to no purpoſe; and ſtrong cathartics made the diſeaſe grow worſe. He was ordered to

be tapped, but his friends would not conſent; wherefore, as his pain was now become intolerable, and there were no hopes of his life, anodynes were thought of, in order to procure him ſome eaſe, at leaſt, in his laſt moments. Accordingly the following draught was given:

℞ Aq. Menth. Piper. ℥j. Cinnamom. ten. ℥ſs. Cinnam. fort. ʒij. Tinct. Thebaic. gt. xxxx. Lixiv. Tart. ʒſs. Syr. Althææ ʒj. M. f. hauſt. veſper. ſumendus.

This procured him moſt unexpected eaſe, and ſome ſleep, to which he had been long a ſtranger; and he made that night, at different times, a quart of water at leaſt. This ſudden change ſurprizingly raiſed his ſpirits. And as the patient found, that, while his eaſe from pain laſted, he had conſiderable diſcharges both by urine and ſtool; but that he filled up again, when the effect of the anodyne was over; the ſame draught was ordered to be repeated every eight hours, and in a little time

it

it was thought ſufficient to give it but twice a day. But whereas his appetite was diminiſhed by the conſtant uſe of this medicine, he took, once or twice a day, ſome ſpoonfuls of a chalybeate bitter infuſion; without neglecting the paregoric draught whenever the pain returned. And this courſe was attended to with ſuch ſucceſs, that, to compleat the cure, he was ordered pills, compoſed of ſtorax pill one part, Peruvian bark two parts, made up with Chio turpentine, to be taken twice a day; whereby he perfectly recovered.

A total abſtaining from all kinds of drink, has, indeed, had its abettors among the faculty; and this method, in ſome aſcitical caſes, proved a ſucceſsful means of cure, when the patients, while ſuffering an exceſſive thirſt, could have reſolution and patience to put ſuch a ſelf-denying method in practice. The way of aſſuaging their thirſt, was by waſhing their mouth and throat with the juice of four apples or lemons, and now and then ſwallowing a very ſmall quantity.

But if the belly cannot be drained of its load of water, either by inciſions made in the legs, as in the anaſarca, or by any other helps above-mentioned, the operation of tapping is moſt adviſeable; as it always conſiderably eaſes the pain occaſioned by the tenſion of the abdomen: beſides which, it has this great uſe, that it affords time and opportunity for adminiſtering proper medicines.

The

The Jaundice.

THIS diſorder manifeſts itſelf by the following *ſymptoms:* a yellowneſs of the whole body, but moſt diſtinguiſhable in the whites of the eyes; cauſed by a ſuffuſion of *bile*, and a rejection thereof to the ſurface; occaſioning an itching of the ſkin: and that all objects ſeem to the patient, to be of a yellow colour. It is attended with a heavineſs, and laſſitude, and ſometimes a bilious vomiting. The excrements are white, or cineritious; but the urine is of a ſaffron-colour, ſtaining linnen dipt therein, yellow.

The cauſe in general is owing to an impeded influx of the bile into the duodenum, and an abſorption of it into the circulation, by which means the ſerous part of the blood becomes tinged therewith; and the urine, being loaded with the bilious ſalts, is of a yellow colour, and the *fæces* appear white, from a defect of *bile* in the inteſtines.

The

The impediment to the natural ſecretion of the *bile*, is occaſioned by a variety of circumſtances: as an inflammation, and *ſcirrhus* of the *liver*; *ſpaſms* of the *biliary veſſels*; concreted *bile*, and *gall-ſtones*; and a *too viſcid* ſtate of the *bile* itſelf.

The cure muſt depend on the cauſes producing the diſeaſe; when it ariſes from inflammation, and is attended with fever, which is known by the fulneſs of the pulſe, heat of the ſkin, drought, and tenderneſs of the right ſide, below the ribs; bleeding, cooling phyſic, nitrous, and other ſaline medicines, are to be given, as in other inflammations.

For this purpoſe, purges with *tamarinds*, &c. ſhould be given every other day; or other cooling phyſic. The diluting drinks with nitre, and the ſaline mixture, may be given liberally till the fever is removed; and emollient fomentations to the belly and ſtomach, applied warm: *opiates* alſo are neceſſary in caſes of extreme pain.

When the fever is removed, after an emetic (if that be found neceſſary), pills of ſoap and rhubarb, to keep the body open, or elſe the

the following aperient apozem, muſt be continued for ſome time, till the bile, becoming leſs viſcid, may be ſeparated in the glands of the liver, to paſs more readily into the inteſtines.

℞ Rad. Rhei opt. Rub. Tinct. an. ʒijſs. Sal. Abſinth. ʒjſs. leni ebullitione per horæ dimidiam continuata f. apozema, cui depurat. add. Syr. è 5. Radic. aper. ℥iij. M. Bibat ʒiij. ter in die.

When the ſkin and excrements have recovered their proper colour, the bitter infuſion, with or without chalybeate, and vitriol drops, may be taken twice a day to mend the bile, and ſtrengthen the conſtitution: for this purpoſe alſo *Bath*, and *Tunbridge waters*, may be very advantageous.

Scirrhus

Scirrhus.

A *Scirrhus* is occaſioned by coagulated juice in the glands; and its ſeat, therefore, may be in any glandule, containing a liquor that is eaſily inſpiſſated.

It may be produced by inflammation, ſtagnation, violent motion, and attrition.

If it be recent, and the patient of a good habit, it ſometimes is reſolvable by the ſteams of acids directed to the part, by means of a funnel; and the uſe of mercury, often repeated, in ſmall quantities: with the ſame applied outwardly, mixed with cooling and emollient medicines.

But, if it does not ſubmit to theſe means, conſidering the ſituation, conſtitution of the patient, and the tumor not adherent but moveable, it ought to be forthwith cut out with a knife.

But

But when it is of long ſtanding, and, from its colour, unevenneſs, beginning to grow painful, and adherent to other veſſels, it is known to be malignant, then all things ought to be avoided but anodynes, and ſuch as quiet motion, that it may not turn into a cancer. The acrimony of the blood is to be corrected by the uſe both of internal and external remedies, and a ſtrict regimen of diet: for which purpoſe, occaſional bleeding, or cupping, and frequent gentle purges of the mercurial kind are to be adminiſtered; with millepedes, ſperma ceti, &c. and the conſtant uſe of nepenthe, to keep off pain.

An *amalgama* of equal parts of *quickſilver* and *lead*, with alike quantities of *Unguent. Roſat. & Nutritum*, mixed, is to be ſpread upon linen-cloth, and worn upon the part continually; and, if any pain is perceived, a ſmall quantity of opium may be added to every freſh application of this plaiſter.

The diet ought to conſiſt of fleſh broth, and other foods prepared of bread, oatmeal, barley, millet; with barley-water, whey, decoctions

coctions of china, and ſarſaparilla, for common drinks. And it is not doubted but that this method will be the ſecure means to take off the ſenſe of pain, and often prevent a cancer.

Cancer.

A *CANCER* differs from a *ſcirrhus*, in that the latter is without pain; but this is accounted the moſt terrible evil that befals the body.

Cancers appear with ſuch a diverſity, that it ſeems impoſſible to give a definition which ſhall agree with all. Some have a round unequal, livid, painful hardneſs; others are flat: and the variety ſeem chiefly owing to their riſe, and the different parts they are ſeated in. Their cauſes are aſcribed to an acid ferment, which firſt coagulates the juices in the glands, and afterwards corrodes and ulcerates the part.

This cruel diſeaſe begins without pain; and appears, at firſt, like a chick pea; increaſing gradually, and at length growing painful.

Cancers have been found on moſt of the ſoft, ſpongy parts of the body; as the gums, belly, neck of the matrix, ureters, lips, noſe, cheeks,

cheeks, abdomen, thighs, and even the ſhoulders, and other parts alſo. But the breaſts are moſt ſubject to this diſeaſe, being full of glands, with lymphatics, and blood veſſels; whereby, on the ſmalleſt contuſion, compreſſion, or punction, there happens an extravaſation of thoſe fluids, which, growing acrimonious, form the cancer.

This diſeaſe hath bid defiance to every method attempted for a radical, compleat cure. The narcotic vegetables, *nightſhade*, and *hemlock*, have had their patrons; but the former ſeems now to be generally forgot, and the latter is conſiderably fallen from its firſt reputation, being now conſidered chiefly as a palliative remedy, in which light it is thought to be uſeful. It is, however, certain, that *Doctor Stork* experienced ſome extraordinary effects from the uſe of it, both in ſcirrhous and cancerous maladies; and that it performed cures on many of his patients: and it was thought by ſome, that, not having been found ſo efficacious in this country, it might probably be owing to the difference of climate. For Mr. *Miller* (vide Botanic. Officin.) ſays,

" Whatever

" Whatever noxious and poiſonous qualities " the *hemlock* of the antients was endued " with, being that which the *Athenians* uſed, " to put their criminals to death; 'tis certain " that the *hemlock* which grows in our re- " gions (though it ſeem to agree well enough " to the deſcription that *Dioſcorides* gives of " theirs) is of a leſs venomous and malig- " nant nature, ſeveral perſons having been " known to have eaten ſome quantity of the " root and ſtalk without any bad effect."

The *German extract*, that at leaſt which I have known experienced, was certainly very different in its effects, from that which was made here. For having had the genuine *hemlock*, with ſome of the *extract*, and *plaiſter*, prepared in *Germany*; I had the ſatisfaction of knowing that they were all made uſe of, ſeemingly to good purpoſe, in *ſcirrhous*, and *cancerous* diſorders: two of which caſes I muſt not forbear to mention, becauſe they would both probably, if they had been conducted with the neceſſary cautions, and directions, that were given, have proved alike ſucceſsful.

The firſt was a woman, under thirty years of age, having had a child, or children, who had a hard *ſcirrhous* tumor in each breaſt; one of which had been growing above two years, and was of a large ſize; from which ſhe had ſuffered pain for ſome months: the other was of a ſhorter continuance, and about half the dimenſion of the former; of a more irregular form, with knots, but not painful. She had had ſome reſtleſs nights, and complained of great uneaſineſs in her teeth and gums, with a flux from the ſalival glands, ſometimes like to choak her. I preſcribed as follows:

℞ Mercur. dulc. ſexies ſublimat. gr. xv. Diagrid. præp. gr. viij. M. f. Pulvis, mane ſumendus ſemel, vel bis in ſeptimana, pro re natâ.

Diebus a Purgatione liberis, capiat Pulv. ſequentem, mane et veſperi:

℞ Antimon. diaphoret. non ablut. gr. viij. Sperm. Ceti ʒj. M .f. Pulvis, dividend. in duas doſes.

Sumantur

Sumantur Nepenth. gt. xx. Sacchar. inſtill. hora ſomni, et repet. urgente dolore.

She purſued this courſe of medicine for a fortnight, or three weeks, when I recommended the following, viz:

℞ Summitat. Cicutæ ſiccat. ℥ij. Aq. font. bullient. ℔ij. infunde calidè et clauſè per noctem. Cum colaturâ tepidè foveantur mammæ mane et veſperi per dies aliquot.

Deinde applicetur ſingulis mammis Emplaſtr. è Cicutâ, renovando quotieſcunque res poſtulabit.

Infus. Cicutæ prædict. tepidè utatur ad os eluendum ſæpè.

Perſiſtat etiam in uſu Nepenth. per occaſionem.

By a continuance in this method ſhe found her pains relieved, and the tumefactions of her breaſts in about five months were totally ſubſided.

Her diet was chiefly milk, and light foods, eggs, &c. by which ſhe was perfectly reſtored to good health.

The other caſe was a cancer on the cheek of a young man, jagged, and of an irregular form, which had been increaſing eight or nine weeks, grew more and more painful, and ſeemed to be of a very corroding nature. The patient was directed to take mercurial purges, and tinctura thebaica, between whiles, to quiet his pain; and after three or four repetitions, the following pills, and fomentation, were ordered; and a milk-diet, to be conſtantly, and ſtrictly perſiſted in:

℞ Extract. Cicutæ Germanorum ʒij. F. pil. no. xxiv. in Pulvere Cicutæ obvolvendæ. Capiat ij. mane et veſperi quotidie, augendo doſin in tempore.

Foveatur pars affecta, linteis duplicatis, Infuſione Cicutæ, madefactis, tepidè, perſæpè.

The patient took four pills every day for the

the firſt week; then increaſed each doſe, to three at a time, for another week; and afterwards took four, twice a day, for a fortnight: by which means, and the uſe of the fotus, in which he thought he found a very great relief, the cancerous humour became much better conditioned, and the diſeaſed part had ſo promiſing an appearance, that the ſurgeon who had the care of him, gave his opinion, that, provided he could prevail with the patient to follow his regimen, he had great reaſon to believe it would be ſoon well. But this, I was told, notwithſtanding all the encouraging circumſtances, he would not comply with; and, diſregarding both medicine, and regimen, that the malady ſoon became as bad as ever.

I am perſuaded, that more experiments than one have ſhewn the *German extract* to be more efficacious in remedying the miſeries of this diſeaſe, than that made from the hemlock of this country. One plain proof, however, where they had been both tried on a poor woman with an ulcerated *cancer*, is

truly convincing: for the *ſurgeon* who attended her, by the uſe of the former, found ſo much benefit, that he had no doubt, but, if ſhe could have been ſupplied with more of the ſame, it would have finiſhed the cure; but, his whole ſtock being exhauſted, he was under a neceſſity of ſubſtituting for it ſome other made in *London*, which had not the ſame effect.

In the Memoirs of the *Royal Academy of Sciences*, mention is made of the radical cure of three inveterate *cancers*, by the infuſion of the leaves of *plumbago* in *olive oil*. Theſe *cancers* had been deemed incurable, by reaſon of their adherence to bony parts. *Monſieur Sauvages de la Croix* obſerves, that theſe cancerous ulcers were anointed three times a day with the before-mentioned infuſion of *plumbago*; that the operation was repeated, till the black eſchar, thereby formed, was ſufficiently encruſted, for the patient to feel no ſharp pains upon the application; and that this happened in about a fortnight's time.

Dr.

Dr. *Cheyne* ſays, that a total *aſs-milk* diet, about two quarts a day, without any other food or drink, will in time cure a *cancer*.

Character of Νηπενθης.

THE learned profeſſor, the late Dr. *Pitcairn*, was of opinion, that there is wanting, in the art of healing, ſome ſuch kind of medicine, as would immediately aſſuage the rarefaction of the blood, and diminiſh its motion, without any ſubſequent bad conſequence.

The character Dr. *Boerhaave* aſcribed to a preparation of opium, ſeems particularly adapted to anſwer this intention. He ſays, that, by the manner of preparing this medicine, the *ſubtile ſpirituous parts*, which contain the noxious quality of the *opium*, are ſo obtunded, and reſtrained, as to render it pure, and wholeſome, and to be poſſeſſed of many virtues: that it not only takes away pain, and the cauſe thereof, but that it refreſhes alſo, and defends all the principal parts of the body; and by diffuſing itſelf to the innermoſt receſſes of the viſcera, in a wonderful manner,

manner, like a *charm*, it comforts *nature*, extinguiſhes *heat*, and induces *ſleep* *.

Theſe are the properties aſcribed to an *opiate* diveſted of all its noxious qualities, by a very tedious proceſs. And, indeed, it ſeems not improbable, but that, by the mediation of ſuch a remedy, after *bleeding*, and the neceſſary *evacuants*, the *rarefaction* and *effervescence* of the *blood*, even when combined with *putrid* exhalations, would be ſpeedily pacified and allayed.

I am induced to ſubſcribe the more readily to this opinion, becauſe I have known ſimilar

* "*Nepenthe* hoc eſt vere inculpabile, et multis virtutibus præditum: non ſolum dolorem, et doloris cauſam abſcindit, verum etiam recreat, et tuetur omnes corporis partes præcipuas; et ſomnum inducendo naturam confortat, ardoremque conſumit.

"Admonendum eſt tamen, medicamentum hoc, niſi tranſacto longo tempore à compoſitione, in uſum non venire; longo enim tempore probe miſcetur, et pravitatem amittit: compeſcuntur, et obtunduntur nimium ſubtiles illius ſpiritûs partes, à quibus omnis noxa: ita ut intimiora viſcerum penetralia mirum in modum, incantamenti inſtar, tutè et placidè invadit." *Boerh.* MS.

inſtances

inſtances, in *malignant fevers*, where this very medicine has generally prevailed. I may add here, that I have given it a great many trials, and to ſome perſons who could bear no other *opiate-medicine*, and never once perceived any ill effect ariſing from the uſe of it: on the contrary, I have reaſon to commend it as the moſt efficacious *cordial* that the *materia medica* has ever afforded. It has been proved to be a charm for the *gout*, and other painful diſeaſes; *low-ſpiritedneſs*, from *depreſſing fevers*; *hyſteric languor*; *difficult menſtruation*; *after-pains*; *wearineſs*, &c.

It is directed to be given dropt upon ſugar, and held in the mouth to diſſolve gradually; whereby it more immediately imparts its operative powers, by the delicate nervous *fibrillæ* of the *palate*, to the *ſenſorium commune*; from whence they are diſtributed, by means of the *animal ſpirits*, throughout the whole *nervous ſyſtem*: and thus the pacific virtues of this medicine, ſometimes, and almoſt inſtantaneouſly, like a charm, by *emanation*, all at once, diſſipate pain and agony; and reſtore eaſe and tranquillity

tranquillity to both body and mind. Of the truth of this, I myſelf have, more than once, been a witneſs; and truly aſtoniſhed at the ſuddenneſs of the tranſition; which was ſo rapid, that the patients have declared themſelves to have been relieved, even in leſs time than the ſugar was ſuppoſed to be diſſolved.

Mr. *Cowper* examined by a *microſcope* a ſolution of *opium*, and found its *diſſolved particles* in the ſhape of *fringed globules*; whence he concludes, that ſuch *particles* circulating in the maſs of *blood*, may eaſily be entangled in its *ſerum*, and thicken it in ſuch a manner, as to retard its velocity, when over-violent, and render it calm and equal; whereby all painful ſenſations will be taken off. Hence we ſee the effect of *opiates*, which uſually tranſport people, with a pleaſing ſenſation of eaſe both of body and mind: and though they do not always ſleep (which is owing to the preſentation of pleaſing objects to the mind, ſo ſtrongly, that, like dreams, they over-engage the fancy, and ſo interrupt it); yet they enjoy ſo perfect an indolence, and

quiet,

quiet, that no happineſs in the world can ſurpaſs the charms of ſo agreeable an *ecſtacy*.

The firſt obſervable effect of the mechanical impreſſion of an opiate-medicine, according to Dr. *Alſton*, is principally on the nerves to which it is applied; next, ſuch as more immediately communicate with them; then thoſe which ſerve for ſenſation, and voluntary motion; and laſt of all, by conſent, the whole *nervous ſyſtem*; the *ſenſorium commune*, and the *mind*.

Bodily pain may be underſtood to be Nature's invocation to the mind, expreſſing the diſtreſſes; and, as it were, to demand aſſiſtance, by the application of means to procure eaſe: ſo that ſhe always ſeeks the artificial cure, when ſhe cannot perform her own; and when the grievous torture is removed by the power of medicine, ſhe purſues and executes her great deſigns with eaſe and tranquillity.

Contuſions.

MANY internal diſeaſes are the frequent conſequences of *falls*, *blows*, and other external injuries, whereby the ſolids are cruſhed, and damaged; and a variety of effects follow, from the nature of thoſe parts which ſuffer the injury: and all theſe are liable to happen without any external rupture, or manifeſt loſs of ſubſtance. Hence proceed *obſtructions*, *inflammation*, and *ulcers*, and even a *gangrene* in proportion to the violence of the cauſe. The injured parts, alſo, may be ſubject to many other miſchiefs; as *varices*, *aneuriſms*, *ſtagnation of the fluids*, &c.

Contuſions on the *thorax* occaſion *difficulty of breathing*, *ſpitting of blood*, *fainting fits*, *inflammation*, *and ulcers of the lungs*; and thoſe of the glands, alſo, threaten *ſcirrhous tumors*, and *cancers*.

A large contuſion of the *cranium* takes away the ſenſes, and the limbs become either con-

convulſed, or rigid; and *death* preſently follows.

From contuſions of the *abdomen*, we may expect *vomiting of blood*, *inflammations*, *ſuppurations*, and *gangrenes of the viſcera*; but if any large veſſels are burſt by the blow, it is no wonder if the patient dies upon the ſpot, even though there be no mark of violence left upon the external part.

Such are the effects of violent contuſions, on different parts of the body.

In the cure of theſe diſorders, reſolvents ought chiefly to be uſed, to prevent ſuppuration and gangrene, by rendering the extravaſated humours fluid, and fitly diſpoſed for abſorption. This is to be done by large bleedings, clyſters, and cooling purges; and applying to the part a penetrating, looſening, and reſolving fomentation; together with internal reſolvents, ſweating, and diuretic medicines: and a thin diet, of ſuch things that do not eaſily putrefy, is likewiſe requiſite.

Experience has given the moſt convincing proofs, that much more may be done, by this method, than is almoſt credible; Nature being

ing ever diſpoſed to lend a helping hand, in ſeparating, attenuating, reſolving, diſperſing, and expelling all extravaſated humours.

Solanum lignoſum is recommended, as a ſingular remedy for internal contuſions; by infuſing four ounces of the green twigs in a quart of *Moſelle wine*. It diſſolves clots of extravaſated blood, and drives it again into the circulating maſs; whence, both by *ſweat* and *urine*, and ſometimes, when taken very liberally, by purging alſo, it throws it out of the body. Indeed, it operates ſo powerfully and ſpecifically by *urine*, that it has been made black as ink.

A young woman, in drawing up a bucket of water, by that time ſhe had got it to the top of the well, was ſo overcome by the labour and fatigue, that her ſtrength could ſupport it no longer; and letting go the winch, it retorted ſo ſudden, and violent a blow, upon her breaſt, that ſhe fell down, and for ſome ſhort ſpace of time was ſuppoſed to be dead. A ſurgeon was fetched, who bled her in the arm plentifully, till ſhe grew ſick, and vomited up the contents of her ſtomach, with a large

a large quantity of blood: ſhe was put into bed, and a clyſter was prepared of the common decoction, with a large quantity of linſeed oil, and a ſpoonful of ſalt, which cleanſed her bowels effectually, but lowered her ſo much, that, to prevent fainting, a flannel roller was applied round her belly; and hot ſtupes, wrung out of a fomentation, were kept, conſtantly repeated, to the injured part. She was ordered to take two or three ſpoonfuls of the following mixture once in three hours:

℞ Sperm. Ceti (Vitel. Ovi ſolut.) ʒij. Nitr. ʒſs. Syr. Balſam. ℥j. Aquar. Hord. ℥vj. Theriacal. ℥ij. Sal. volat. Corn. Cerv. ϑij. M.

A cup of water, in which ſome mace had been boiled, with a ſmall ſpoonful of wine added, was alſo given her warm between whiles.

This helped to keep of ſick fits; and ſhe lay in a free, open perſpiration, by theſe means, throughout the night, and till the afternoon of the day following; when ſhe grew reſtleſs

reſtleſs and hot, with a quick pulſe, ſhort cough, and uneaſy reſpiration. A *Phyſician* was called, who ordered bleeding to be repeated, and Pil. Ruffi ℈j. è Styrac. gr. v. to be taken at night, and repeated every, or each other night, as there was occaſion.

The following infuſion was preſcribed alſo at the ſame time:

℞ Sarment. Solan. lign. concis. ʒiv. Theriac. Venet. ʒſs. Vin. alb. mont. Aq. font. an. ℔j. Infunde calidè et clauſè per noctem, et in colaturâ miſce Aq. Theriac. Syr. Heder. terr. an. ʒij. M. Sumat cochl. vj. ter in die, repetendo donec intentioni ſatisfiat.

The ſpecific virtue of this medicine, as a diſſolvent of coagulated blood, was truly manifeſted by the blackneſs of the excretions, both by ſtool and urine, for ſeveral days.

After this, the patient was ordered to purſue a courſe of aſs's milk, night and morning, with an infuſion of the bark twice a day, for a month. By which means ſhe was perfectly reſtored to health and ſtrength.

I have experienced effects ſimilar, from the *ſolanum lignoſum*, when differently preſcribed; but, to ſerve the intention ſingly, have found it to be more grateful to the patient, when infuſed in Moſelle, or Rheniſh wine, than in any other way.

Worms.

Worms.

HEAD-ACH, vomiting, heart-burn, ſighing, ſwooning, feeble pulſe, ſleepineſs, canine hunger, and innumerable other ſymptoms, are derived from worms in the human body; occaſioned by their ſucking, moving, vellicating, gnawing, conſuming the chyle, irritating the nerves, wounding the ſolids, &c.

As to the *vermis latus*, beſides the other common ſymptoms, thoſe affected with this, have one peculiar to them; which is, that, with their ſtools, they frequently diſcharge ſeveral little bodies, like gourd-ſeeds.

There are a great variety of medicines given for the deſtroying of worms; but, as they are of very different kinds, there is great caution required in ſelecting ſuch as are moſt proper for each peculiar caſe.

Acids, in general, are eſteemed; and lemon-juice, vinegar, and other vegetable acids,

ſuch as pomegranate, and currant-juice, &c. are given; and ſometimes the mineral ones, as the ſpirit of vitriol, ſulphur, &c. All theſe are properly given, when there is a preternatural heat, and feveriſh diſpoſition; for they not only allay the heat, but reſiſt putrefaction.

Bitters in general are alſo reckoned, among the medicines, good againſt worms; of this kind are wormwood, centaury, rue, and the like; and to theſe are to be added, the purging bitters, ſuch as rhubarb, aloes, and colocynth. Theſe medicines do not act merely as bitters; for it is well known, that many inſects will endure the bittereſt ſubſtances unhurt, and worms will breed in the gall-bladder: but they correct, and alter the crude, and viſcid matter, in the inteſtines, by which theſe animals are nouriſhed; and, by ſtimulating the fibres of the inteſtines, they often diſcharge the noxious matter, and worms themſelves with it. They alſo correct the inactivity of the bile, which in children, and perſons of moiſt habits, is the general cauſe of the breeding and living of theſe inſects.

Oily

Oily medicines of all kinds, are by ſome greatly extolled in caſes of worms: and there ſeems this reaſon for it, that all inſects are deſtroyed by being put into oil; and that flies, and many other ſmall animals, which, after ſeeming dead, on being immerſed in other liquors, would come to life again, on being expoſed to the ſolar rays, never revived again after being drowned in oil. To this it may be added, that very good effects always follow the giving oils, in caſes of the greateſt torment from worms. It is not to be ſuppoſed, however, that the oil acts by covering and drowning the worms, ſince to this purpoſe there muſt be as much ſwallowed as would fill the whole inteſtinal canal; but this cannot be. Oils therefore plainly act, in this caſe, on the ſymptoms, not on the cauſe; and relax the ſpaſmodically contracted coats of the inteſtines, and, as it were, defend and line them with a ſort of mucilage, in ſuch a manner, that the more acrid purging medicines, neceſſary to the utter deſtruction of the animals themſelves, may be given with more

ſafety. Thus it is a very good method, to give a child over night half an ounce, or more, of oil of ſweet almonds, and, in the morning following, a briſk purge of the *reſin of jalap*, *mercurius dulcis*, or any thing elſe of this kind.

Saline ſubſtances, in general, are alſo greatly celebrated for the cure of worms; and they, indeed, are capable of acting in a double capacity, by deſtroying the tender ſtructure of many of them, and vellicating the inteſtines ſo as to promote the diſcharging them.

But if any diſorder admits of ſpecific remedies, we might expect that this malady would: for theſe purpoſes, many extol ſome of the gums; as *aſa fœtida*, *galbanum*, and *myrrh*; and the leaves of ſome plants, as *wormwood*, and *tanſey*. *Onions*, and *garlick*, are alſo greatly commended; and *bitter almonds*, and *wormſeed*, have long been famous. All theſe are found peculiarly deſtructive of worms; and no method of cure ſucceeds well, in which one or other of theſe has not a ſhare.

Among

Among the *minerals*, we find alſo one remedy, greater than all theſe, that is *quickſilver:* this has been given in various forms, and found more or leſs ſucceſsful in all.

Water, in which quickſilver had been boiled, was firſt given by *Helmont*, and that with great ſucceſs; after this, *Meiboom* infuſed crude mercury in *Rheniſh wine*, and found it more effectual than the former. But the moſt ſucceſsful method ſeems the giving proper doſes of *mercurius dulcis*, with either *reſin of jalap*, *or ſcammony*.

Sir Theodore Mayerne aſſures us, in the *Philoſophical Tranſactions*, No. 211. that the famous remedy given by *Pontæus*, for the worms in children, is fifteen grains of *mercurius dulcis*, with five grains of *ſcammony*, and two or three times as much ſugar, made up in lozenges. He adds, that this doſe of *ſcammony*, which in *France* purges grown people, is ineffectual in *England*, to perſons above fifteen years old, and ought to be augmented.

Acrid purgatives, or hot remedies, are never to be given where there is a febrile heat: and

when there is cauſe to ſuſpect that the duodenum is full of an acrid bile, then mercurials are to be avoided, as are all the draſtic purges; for theſe medicines, in theſe circumſtances, often bring on an inflammation of the bowels.

The

The Doctrine of the Pulse.

HIPPOCRATES was the first observer of that reciprocal motion of the *heart* and *arteries*, called the *pulse*; whereby the blood, thrown out of the left *ventricle* of the heart, is so impelled into the *arteries*, to be by them distributed throughout the body, as to be perceivable by the finger.

Pulse is thus accounted for: When the left ventricle of the heart contracts, and throws its blood into the *aorta*, the blood in the *artery* is not only thrust forward towards the *extremities*, but the channel of the *artery* is likewise dilated; because fluids, when they are pressed, press again to all sides, and their pressure is always perpendicular to the sides of the containing vessels: but the coats of the *artery*, by any small *impetus*, may be distended; therefore, upon the contraction or *systole* of the heart, the blood from the left ventricle will

will not only preſs the blood in the *artery* forwards, but both together will diſtend the ſides of the *artery*. When the impetus of the blood againſt the ſides of the *artery* ceaſes; that is, when the left ventricle ceaſes to contract; then the *ſpiral fibres* of the *artery*, by their natural *elaſticity*, return again to their former ſtate, and contract the *channel* of the *artery*, till it is again dilated by the *diaſtole* of the heart. This *diaſtole* of the *artery* is called the pulſe; and the time the ſpiral fibres are returning to their natural ſtate, is the diſtance between two *pulſes*. This pulſe is in all the *arteries* of the body at the ſame time; for when the *blood* is thruſt out of the *heart* into the *artery*, the *artery* being full, the blood muſt move in all the *arteries* at the ſame time: and becauſe the *arteries* are *conical*, and the blood moves from the *baſis* of the *cone* to the *apex*, therefore the blood muſt ſtrike againſt the ſides of the veſſels, and conſequently every point of the artery muſt be dilated at the ſame time that the blood is thrown out of the left *ventricle* of the

the heart; and as ſoon as the *elaſticity* of the *ſpiral fibres* can overcome the *impetus* of the blood, the *arteries* are again contracted. Thus two cauſes operating *alternately*, the *heart* and *fibres* of the *arteries*, keep the blood in a continual motion.

The obſervation of the pulſe is of the utmoſt importance, as it diſcovers the ſtate of the heart, the firſt mover in the animal frame; and as it ſhews the *nature*, *quality*, and *motion* of the *blood*, that univerſal humour whereon all the reſt depend; and as it indicates the condition of the artery, the primary veſſel of the whole body.

A ſtrong pulſe, then, denotes,

1. A great muſcular force of the *heart*; and, conſequently, the ſtrength of the contracting cauſe: that is,

2. A briſk and copious influx of the *nervous juice* into the *villi* of the *heart*.

3. Plenty of blood.

4. A laudable ſecretion, and circulation of humours.

A weak pulſe denotes the contrary.

A *hard*

A *hard pulſe* ſignifies,

1. That the *membrane* of the *artery* is drier than ordinary; and, therefore,

2. Obſtructions in the minute veſicles, whereof the membranes of the artery are woven.

3. That the *arteries* are full; but

4. That their *capillary extremities* are obſtructed with an *inflammatory viſcidity*.

5. That the *blood* is very denſe, and compact: hence,

6. That the circulations, ſecretions, and excretions, are depraved.

A *ſoft pulſe* denotes the contrary to all theſe; yet is very fallacious in an acute *peripneumonia*.

A *ſlow pulſe* ſignifies that the contractions of the *heart* are ſlow; and, therefore,

1. A ſlowneſs of the influxes of the nervous juice, from the *brain*, into the *villi* of the heart.

2. That the *blood* has circulated a great number of times.

3. That all the *humours* circulate eaſily through

through their veſſels. Indeed, if the *pulſe* be thus from weakneſs, it is an ill ſign.

A quick pulſe denotes the contrary of all theſe; as *acrimonies*, *ſpirits agitated*, *fevers*, and *phrenzy*.

An equable pulſe ſhews a conſtant tenor of the vital functions; an uneven one, the contrary.

An intermitting pulſe ſhews life in a ſlippery ſituation. It is either owing to a fault in the nervous juice, which flows unequally into the heart; or in the veſſel which tranſmits the *blood* and *humours*; or to the humours themſelves. The cauſes of this diſorder are various; as *convulſions*, *polypuſes*, *cacochymias*, *inflammations*, want of *blood*, *bony*, or *cartilaginous arteries*, *&c.*

A ſtrong, equable, and, at the ſame time, ſlow *pulſe*, is, of all others, the beſt. A ſtrong and great, or ſtrong and ſlow *pulſe*, together, are good. A weak, ſmall, unequal, intermitting, quick *pulſe*, is, of all others, the worſt.

Yet, in all theſe things, regard muſt be had to the particular *artery*, the *age*, *ſex*, *temperament*,

temperament, *affections of the mind*, the fix *non-naturals*, *habit of body*, *ſeaſon*, *country*, *&c.* all which have an influence on the *pulſe*.

Of

Of Fevers in general.

THE cauſes of *fevers* are innumerable; and the diſeaſe often ariſes in the ſoundeſt habits, without any ſeeming *apparatus*, merely from the change of *air*, *food*, or other alteration in the *non-naturals*.

Pathognomonick ſymptoms are, a ſenſe of *chillneſs*, *quick pulſe*, and *preternatural heat*. Theſe are attended with an *immoderate thirſt*, *loathing of food*, *wakefulneſs*, *great loſs of ſtrength*, *inaptitude to motion*, *a ſenſation of pain*, *and an uneaſy reſpiration*.

Glandular ſecretions, in all *fevers*, are either obſtructed, or diminiſhed: that is, a great part of the *lymph*, or *ſerum* of the *blood*, which ought to be continually drained off by the *glands*, is ſo retained in, and cloſely united to the maſs, that it circulates together with it, in the *veins* and *arteries*.

Fevers very often are cured by *Nature* alone,

alone, and go off happily, only, by the *patient's abſtinence, a quiet ſtate, and keeping up the natural evacuations.* In this manner, great numbers recover, without the help of *medicines.* A number, almoſt as great, is deſtroyed by *medicines*; which, when adminiſtered by perſons who have not ſufficient judgment, interrupt *Nature*, and prevent the *neceſſary excretions.*

Fevers go off, according to the language of *phyſicians*, either by a *criſis*, or *lyſis:* In the firſt caſe, by means of any *critical evacuations*, which may happen in ſufficient quantity, to bring with them a ſort of inſtantaneous cure; whereby the patient becomes well, and eaſy, though immediately before he was in the utmoſt anxiety and uneaſineſs. In the other, they only wear off gradually, growing, ſlowly, *leſs and leſs violent.*

Sweating is the cure of all *fevers*, but it never happens during the burning heat; which is to be aſſuaged by *clyſters*, and a plentiful dilution. And it is to be obſerved, that, when the fever goes off happily, and eaſily, without

without any medicines, the patient always enjoys a better ſtate of health after, than he had before.

The *phyſician* in all *fevers* is to endeavour to make himſelf the *ſervant* and *aſſiſtant* of *Nature*; by endeavouring, in the beginning, and increaſe of the diſeaſe, to prepare, diſpoſe, and ſearch the *noxious matter*; and in the ſtate and declenſion, to eliminate, and evacuate it, ſo prepared, by the proper paſſages. The whole buſineſs of *art*, therefore, is to aſſiſt *Nature* in theſe two efforts; of ſecretion, and excretion of the matter.

The remedies which we are to give, to aſſiſt the ſecretion, and preparation of the *morbid matter*, are the moiſtening things in general; ſuch as a ſufficient quantity of warm, and weak fluids: as the common *barley-water*, and teas made of *ſage*, *mint*, *baum*, *&c.* and the milder *alexipharmic roots*; with theſe, alſo, are to be given the gentle *reſolvents*, ſuch as are able to break the thick, and tough conſiſtence of the humours: of this kind are the temperate *alexipharmic roots*, eſpecially, as they are alſo endowed

with a *diuretic* virtue; ſuch are the roots of *enula campana, anagallis, petaſites, &c. Scordium* is alſo, by ſome, greatly recommended in this intention. Theſe may be conveniently given in *decoctions*, or *infuſions*, with powders, compoſed of the *abſterſive* and *digeſtive ſalts*, ſuch as *tartarum vitriolatum, &c*; mixed with ſuch things as have a power of obtunding, and incraſſating, the acrid, and thin *ſulphurious ſaline humours:* ſuch are the abſorbent powders of *oiſter-ſhells, crab's claws, &c.* Theſe ſhould be firſt ſated with *lemon-juice*; and then, mixed with a little *nitre*, and the before-mentioned ſalts, they make an excellent *medicine.* Theſe may be given every three, four, or ſix hours, as the urgency of *ſymptoms* requires; and a draught of the above-mentioned decoction given after them. *Emulſions* of ſweet almonds, and the cooling ſeeds, are alſo very proper between whiles.

The medicines by which the *phyſician* is to aſſiſt *Nature* in her following buſineſs of excretion, are the gentle *diaphoretics*, among which the *calx of antimony*, when truly prepared, holds a very high place. Thoſe alexipharmics,

alexipharmics, alſo, which have a *diuretic virtue*, ſuch as *mixtura ſimplex*, when faithfully prepared, and lightly *camphorated*, are very proper; and the bowels are in the mean time to be kept open by *emollient clyſters*. Theſe things are proper in all *fevers*; but in ſome, alſo, emetics, gently laxative medicines, and bleeding, are extremely requiſite: thoſe, however, are not always to be admitted at random, in all kinds.

All violent *medicines* are to be dreaded in *fevers*: for *Nature* uſually attempts to do her office placidly, and quietly, in theſe caſes; and ſuch medicines as diſturb her motions, often bring on miſchiefs, which ſhe would have avoided.

In all *fevers*, the drinking plentifully of warm weak liquors is attended with many good conſequences; the *patient* is always refreſhed by it, the *febrile heat* is mitigated, and *reſt* is promoted, and the proper and neceſſary *ſweats* forwarded. The *ſymptoms* of *fevers* are never to be ſo much regarded as to prevent the due attention to the principal point; nor is the *phyſician* to be alarmed at

them. Want of appetite, and thirſt, with long watchings, are not to be attacked with particular medicines, but looked upon as mere *ſymptoms*, which will hereafter go off of themſelves; and inquietude of *mind* ſhould have no other medicine, than ſerious advice of the harm it will do. Sudden cooling of the body, in all *fevers*, is a very dangerous thing. The *patient* is to be adviſed to ſwallow his liquors *gently*, not *haſtily*.

Nitre is an admirable medicine in all *fevers* in general; it agrees with all temperaments, but principally with the hot: when taken in the ſolution with warm and weak liquors, it always gently opens the bowels; and when given in powders, it more than all other things obtunds the *acrimony* of the humours.

Dr. *Sydenham* recommends an *emetic* in the beginning of a *fever*; or, if it have been omitted, in any other ſtage thereof; eſpecially where there is a propenſity to *vomiting*: for want of this a *diarrhœa* frequently ſucceeds, which is often exceedingly dangerous. After this he gives a *paregoric*; and the following days, if there be no indication to

to repeat the *venæſection*, nor any *diarrhœa*, he preſcribes every other day an *enema*, till the twelfth day: when matters uſually come to a *criſis*, he has recourſe to hotter medicines, in order to promote and accelerate it. He adds, that if the diſeaſe proceed well, and the fermentation be laudable, there is no occaſion for any phyſic at all. About the fifteenth day, if the *urine* be found to ſeparate, and give a ſediment, and the *ſymptoms* be abated, a *cathartic* is uſually ordered, leſt the ſediment, returning into the blood again, occaſion a relapſe. Nothing cools the patient, and abates the *fever*, ſo much as a cathartic after venæſection.

The more acute the *fever*, the thinner, according to *Etmuller*, muſt be the diet. It is no matter, if the *patient* ſhould faſt for ſeveral days running; for never did feveriſh perſons die of hunger: eating always exaſperates the diſeaſe. *Emetics* he allows the principal place, in the cure of all *fevers*; but, as a patron of the hot *regimen*, he aſſigns *ſudorifics* the ſecond. *Spirit of ſal ammoniac*, or its *ſal volatile*, he obſerves, is an univerſal

febrifuge, and rarely fails. All *ſugared* things are hurtful.

So long as the *urine* remains crude, that is, does not give a ſediment, the *patient*'s caſe is dubious: but when once the *coction* commences, and the *urine* ſeparates, the great danger is generally over.

It ought to be obſerved as a matter of importance, that a conſtant confinement of the *patient* to his bed, and eſpecially in hot weather, is, in moſt *fevers*, hurtful: and, in the general, it is highly neceſſary that he ſhould ſit up, now and then, a little while at a time, as it cools the body, and refreſhes the mind; prevents a *delirium*, and facilitates the excretions: but it is never to be ſuffered when he is in a *breathing ſweat*, tending to a *critical termination*. Mean time, while the *patient* is out of bed, the ſheets ſhould be conſtantly changed every day, after being purified by freſh air from the *morbific effluvia*, which would, otherwiſe, increaſe the *malignity*.

A free circulation of freſh, cool *air*, let into the room, occaſionally, from the *window*, or *door*, is certainly of much benefit; and warm

warm *vinegar*, ſprinkled daily on the floor, as a corrector of foul *air*, is a uſeful expedient.

The *patient*'s food ſhould be no other nouriſhment than *panada*, *barley*, *oatmeal*, or *rice gruel*; unleſs, now and then, if faint, or low, a few ſpoonfuls of *Boerhaave*'s decoction of bread, made by boiling half a pound of bread for an hour, in three pints of water, in an earthen veſſel cloſe ſtopt: then ſtrain it through a ſieve, and add to a pint of the decoction half an ounce of *lemon-juice*, and four ounces of *Rheniſh wine*, with *ſugar* enough to make it palatable.

Fevers are eſſential, and ſymptomatical. The firſt hath its principle in the *blood*: the laſt does not properly ſubſiſt of itſelf, but derives its origin from an inflammation, or diſorder of ſome particular part.

It is found nevertheleſs, by experience, that ſome perſons, from ſound and perfect health, where there has been neither a *plethory*, nor any *cacochymical* diſpoſition to cauſe it, have fallen into a fever; becauſe, perhaps, ſome very extraordinary alteration

in the air, or ſome great change in their way of living, or ſome conſiderable error in the *non-naturals*, have happened, till their blood acquired a new ſtate and condition, fit to accommodate itſelf to ſuch changes and alterations.

The general cure of fevers, according to *Boerhaave*, is ſummarily comprehended in conſulting the ſtrength of *Nature*; in correcting and diſcharging the acrimony from the blood; in diſſolving groſs humours, and expelling them; and in mitigating the *ſymptoms*.

If the ſymptoms run high, and Nature grows exorbitant, we muſt enjoin abſtinence, a ſlender diet, drinking water, bleeding, cooling *clyſters*, &c. If Nature ſeems to be ſluggiſh, ſhe is to be excited by *cordials*, *aromatics*, *volatiles*, &c.

The cauſe being removed, the ſymptoms ceaſe; but if they can be borne without danger of life, they ſcarce require any particular cure; nor many times are they, without caution, to be interrupted: but if they are unſeaſonable, and too violent, they are to be mitigated

mitigated with proper remedies; due regard being had to the cauſe, and ſtate of the diſtemper.

If there be any obſtruction in the bowels, we are to take care, by proper evacuations, to remove the load, and by that means take away ſome of the fuel of the diſtemper: if the blood be too furiouſly agitated, we are to quell ſuch an impetuoſity: if it be embarraſſed with groſs and coagulated humours, we are to endeavour to diſſolve it, and render it more fluid: for in the due obſervation of theſe precepts, conſiſts in a manner the whole cure of fevers, where the *viſcera* are ſound, and the peccant humours are lodged in the blood, or primæ viæ. And when Nature tends to produce a *criſis*, or ſhe has already began it, we are to refrain from the uſe of medicines.

They are groſſly miſtaken, who in acute, and inflammatory diſtempers, make uſe of abundance of medicines: for the orderly motion of Nature being diſturbed, and diſtracted thereby, the fever is not leſſened, and the criſis is poſtponed; and the patient, expoſed to

to a dubious event, either dies, or falls into a chronical diſtemper.

The ſkilful phyſician, who goes on ſoft and fair, will find that a clear and diſtinct method of practice is for the moſt part crowned with ſucceſs.

A Pro-

A Prophylactic Cure of Fevers.

ACCORDING to *Nature's* doctrine, diſeaſes are more eaſily prevented, than cured: for it is much eaſier, and ſafer, to remove the cauſe of a diſtemper, in its ſimple ſtate, than after it is become more complicate, and hazardous.

The *ſymptoms* preſent in all *fevers*, are a ſhivering, quick pulſe, and heat.

During the *cold-fit*, the *pulſe* is *quick*, *ſmall*, and often *intermitting*: the extremities are *pale*, *cold*, *ſtiff*, *trembling*, and *void of feeling*.

The cauſe of *ſhivering* ariſes, either from bloody humours ſtagnating at the ends of the *capillary veſſels*, or a too quick, reciprocal influx, of the *nervous juice*, into the *muſcles*, and *ventricles of the heart*.

The neareſt cauſe of a *fever*, is a quicker, than the natural contraction of the *heart*.

This firſt ſymptom of a *fever* is quickly remedied, by the immediate uſe of a warm bath,

bath, with moderate, and continued friction; diluting plentifully with draughts of *warm water*, with *nitre*, *honey*, and a proper proportion of *Rhenish Wine*; taking between the draughts some drops of *dulcified spirit of nitre* on *sugar*, held in the mouth to dissolve gradually: mitigating the symptoms, also, if necessary, by *bleeding*, *clysters*, &c. by which means, many have been cured of the certain forerunner of acute and dangerous *fevers*.

Eſſay on Foods.

THE firſt foods of our great forefathers, were water, and the ſpontaneous productions of the earth; with which alſo many whole nations ſuſtain themſelves to this day.

Fleſh-meat not being a proper food without dreſſing, is alleged as an argument, that man was not intended for a *carnivorous*, or *fleſh-eating animal.*

The uſual operations, are roaſting, boiling, and ſtewing. In roaſting it is obſerved, meat will bear a much greater, and ſtronger heat, than either in boiling, or ſtewing; and in boiling, greater, and longer, than in ſtewing.

The reaſon is, that roaſting, being performed in the open air, as the parts begin externally to warm, they extend and dilate, and ſo gradually let out part of the rarefied included air; by which means the internal ſuccuſſions, on which the diſſolution depends, are much weakened and abated. Boiling being per-

performed in water, the preſſure is greater, and conſequently the ſuccuſſions to lift up the weight, are proportionably ſtrong; by which means the coction is haſtened: and even in this way, there are great differences; for the greater the weight of water, the ſooner is the buſineſs done.

In ſtewing, though the heat be infinitely ſhort of what is employed in the other ways, the operation is much more quick, becauſe performed in a cloſe veſſel, and full; by which means the ſuccuſſions are more often repeated, and more ſtrongly reverberated. Hence the force of *Papin's Digeſtor*; and hence an illuſtration of the operation of digeſtion.

Boiling, Dr. *Cheyne* obſerves, draws more of the rank, ſtrong juices, from meat, and leaves it leſs nutritive, more diluted, lighter, and eaſier of digeſtion: roaſting, on the other hand, leaves it fuller of the ſtrong nutritive juices, harder to digeſt, and needing more dilution.

Strong, grown, and adult animal food, there-

therefore, ſhould be boiled; and the younger and tenderer, roaſted.

The drinks, in different countries, are different. Thoſe ordinarily uſed amongſt us, are, water, malt-liquors, and wine.

Water, no doubt, was the primitive, original drink of man, as it is the only ſimple fluid fitting for diluting, moiſtening, and cooling; the only ends of drink appointed by Nature: and happy had it been for all the race of *mankind*, had other mixed, and artificial liquors, never been invented. Water alone is ſufficient, and effectual, for all the purpoſes of human wants in drink. Strong liquors were never deſigned for common uſe. They were formerly kept here, in *England*, as other *medicines* are, in *apothecaries* ſhops, and preſcribed by phyſicians to refreſh the weary, ſtrengthen the weak, and raiſe the low-ſpirited. The effect of the ordinary uſe of *wine*, and *ſpirituous liquors*, as natural cauſes will always produce their effects, is to inflame the blood into *gout*, *ſtone*, and *rheumatiſm*, *fevers*, *pleuriſies*, *&c.*; to draw up the *juices*, and ſcorch and ſhrivel the *ſolids*. Thoſe, whoſe

whoſe appetite and digeſtion is good, and entire, never want *ſtrong liquors* to ſupply them with *ſpirits*: ſuch *ſpirits* are too *volatile* and fugitive, for any ſolid, or uſeful purpoſes of life. Two ounces of fleſh-meat, well digeſted, beget a greater ſtock of more durable, and uſeful ſpirits, than ten times as much *ſtrong liquors*.

All ſtrong liquors are as hard to digeſt, and require as much labour of the concoctive powers, as ſtrong food itſelf: water is the only univerſal diſſolvent, or *menſtruum*, and the moſt certain diluter of all bodies proper for food. There are a great many *ſpirituous liquors*, which not only will not diſſolve, but which will harden, and make more indigeſtible certain parts, eſpecially the *ſalts* of bodies, wherein their active qualities, that is, thoſe which can do moſt harm to human conſtitutions, conſiſt. And we have known perſons of tender conſtitutions, who could neither eat, nor digeſt, upon drinking *wine*; who, by drinking at meals, common water warmed, have recovered their appetite and digeſtion, and have thriven and grown plump.

It

It is true, *ſtrong liquors*, by their heat and ſtimulation on the organs of concoction, by increaſing the velocity of the motion of the fluids, and thereby quickening the other animal functions, will carry off the load that lies upon the ſtomach, with more preſent chearfulneſs: but then, beſide the future damages of ſuch a quantity of *wine* to the ſtomach, and the fluids, by its heat and inflammation, the food is hurried into the habit unconcocted, and lays a foundation for a *fever*, a fit of the *colic*, or ſome chronical diſeaſe.

The firſt drinks of *mankind* were certainly water, and milk: but the love of luxury and debauchery, ſoon introduced the art of preparing intoxicating and inebriating drinks out of *vegetables*. The vine gave the firſt of theſe liquors; after this, *wheat*, *barley*, *millet*, *oats*, *rice*, *apples*, *pears*, and *pomegranates*; and after theſe, the juices drained from the *pine*, *ſycamore*, *birch*, and *maple*, were brought to this uſe: in latter times, *roots*, *berries*, and the *pith* of the *ſugar-cane*, have been employed for the ſame purpoſes: *honey*, alſo, is

at preſent in ſome repute; but, before the uſe of other things here mentioned, the vinous liquor, made of *honey* and *water*, was in the higheſt eſtimation. The *bees* were natural purveyors, and their ſtores were one of the firſt delicacies, probably, of the human race. It was very natural to attempt the meliorating ſo raw a drink as water, by an addition of this ſweet ſubſtance; and ſuch a mixture needed only time for fermentation to become vinous: accident ſoon lead to this diſcovery. *Mead*, therefore, may naturally be ſuppoſed to have been one of the firſt ſtrong liquors in uſe in the world; and among the old writers, among the *Greeks*, we find it named as a thing well known. *Homer*, *Heſiod*, and *Ariſtophanes*, all give plain proofs of their having been acquainted with it; and *Orpheus* repreſents Night counſelling *Jupiter* to make *Saturn* drunk with *mead*, and then to dethrone, and caſtrate him.

The people who have ſtudied the human frame, all agree, that, among the ſtrong drinks, *wine* is the moſt pernicious; and that good *water*, *milk*, and *cyder*, are greatly preferable

ferable to it; none of theſe bringing on the variety of diſorders, to which immoderate *wine-drinkers* are ſubject, ſuch as decay of *ſight*, trembling of the *limbs*, *&c.*

The qualities of *food*, as to eaſineſs, or difficulty of *digeſtion*, Dr. *Cheyne* thinks, may be determined, in all caſes, from theſe three principles:

1. That thoſe ſubſtances which conſiſt of the groſſeſt parts, are hardeſt of *digeſtion*; by reaſon their conſtituent parts touch in the moſt points, or have the greateſt quantity of contact, upon which their coheſion depends.

2. That thoſe ſubſtances, whoſe parts are brought together with greater force, cohere proportionably cloſer, and are the more difficultly ſeparated.

3. That ſalts are very hard to be digeſted, becauſe united by plane ſurfaces, under which they are always comprehended: hence, in the large ſtages of the circulation, where it is ſlower, they readily ſhoot into larger cluſters, and ſo are hard to be driven out of the habit.

From theſe principles this *author* infers, that ſuch *vegetables* and *animals* as come ſooneſt to their growth, are eaſier of digeſtion, than thoſe long in attaining to maturity: the ſmalleſt of their kind, ſooner than the larger: thoſe of a dry, fleſhy, and fibrous ſubſtance, ſooner than the oily, fat, and glutinous: thoſe of a white colour, ſooner than thoſe of a redder: thoſe of a ſoft, mild, and ſweet, ſooner than thoſe of a rich, poignant, aromatic taſte: land *animals*, than ſea *animals*: *animals* that live on light vegetable food, than thoſe on hard and heavy food: plain-dreſſed food, than what is pickled, ſalted, baked, ſmoked, or otherwiſe high-ſeaſoned: and boiled meat ſooner than roaſt.

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